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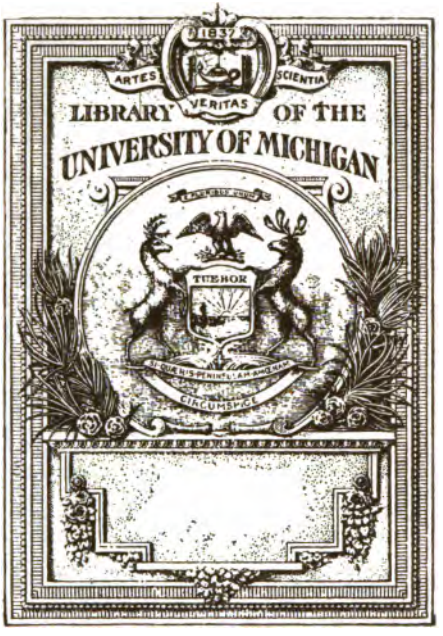

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WATER-GLASS

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Synopsis

	Page
Bibliography	5
Patent Literature	6
History	6
General	7
Properties	21
Manufacture	33
Applications	39
General and Miscellaneous	39
Agglutinants	44
General and Miscellaneous	44
Abrasives	46
Cements	47
Detergents	49
Analysis	54
Egg Preservation	55
Glass and Ceramics	59
Medicine and Surgery	63
Paper	66
Structural Materials	68
General and Miscellaneous	68
Artificial Stone	69
Concrete	71
Fireproofing. Preservation of Wood	73
Paints and Preservative Coatings	74
Textiles	78
Analysis	81

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Abbreviations

col.	column	pt.	part
comp.	compiler	pts.	parts
ed.	edition, editor	pseud.	pseudonym
n. d.	no date	pub.	publisher
n. s.	new series	sec.	section
no.	number	ser.	series
p.	page, pages	v.	volume

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Water-Glass

In much of the literature relating to water-glass the use of the term is rather vague and inconsistent. Though this bibliography is concerned mainly with the literature of sodium silicate, it lists some material on double silicates and many references to the earlier literature of potassium silicate. It does not cover the literature of silica gel, nor include the extensive literature of glass technology and chemical analysis in which sodium silicate is mentioned incidentally. Brief notes are given in regard to general sources of information in several important sets of patents, but no attempt has been made to list individual patents. Within these limits, the list represents a fairly thorough presentation of the material in the Technology Department of the Carnegie Library of Pittsburgh.

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See also Jones, Hilton Ira, & DuBois, Robert, under "Egg Preservation."

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Class 1 (iii), "Oxides, hydrates, oxyacids, and salts, metallic [*other than* alkali manufacture *and* cyanogen compounds]," covers the period 1909–15. Patents on water-glass will be found in the subject-index under alkali metal silicates and sodium silicates.

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Subclass 14, "Electrical insulating, soluble silicates," contains 20 patents. Subclass 19, "Heat insulating, soluble silicates," contains 16 patents. Subclass 30, "Artificial stone, soluble silicates," contains 103 patents.

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Textbook of inorganic chemistry for colleges. 677 p. 1921. McGraw. (International chemical series.)
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Peligot, Eugène.

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Wasserglas und alkalisilicate. 1916. (In Berichte der Deutschen Chemischen Gesellschaft, v.49, p.397–436.)

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Roscoe, *Sir* Henry Enfield, & **Schorlemmer,** Carl.

Treatise on chemistry. [Ed.4], revised by Sir H. E. Roscoe and A. Harder. v.1–2. 1907–11. Macmillan.

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Ausführliches lehrbuch der pharmazeutischen chemie. Ed.5, enlarged. 2v. in 3. 1907–11. Vieweg, Brunswick, Germany.

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On the recent progress and present condition of manufacturing chemistry in the South Lancashire district. 1861. (In Report of the British Association for the Advancement of Science, v.31, Reports of the state of science, p.108–128.)

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Les silicates solubles. 1881. (In Le Génie civil, v.1, p.571.)

Short article dealing with manufacture and applications.

Soluble glass. 1888. (In Chemical trade journal, v.2, p.67.)

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Soluble glass. 1885. (In Scientific American supplement, v.19, p.7706)

From "Glassware reporter." Describes manufacture, properties, and uses.

Soluble silicate of soda, water glass or mineral gum. 1858. (In Pharmaceutical journal and transactions, v.17, p.543–544.)

The same. 1858. (In American journal of pharmacy, v.30, ser.3, v.6, p.336–337.)

Deals briefly with properties and uses.

Spons' encyclopædia of the industrial arts. 5v. 1879–82. Spon.

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Outlines of industrial chemistry. Ed.3, revised and enlarged. 665 p. 1916. Macmillan.

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Natriummetasilikat-enneahydrat, ein gut definiertes, krystallisiertes natriummetasilikat. 1914. (In Zeitschrift für anorganische chemie, v.88, p.341–348.)

The same, abstract. 1915. (In Chemisch-technisches repertorium, v.39, p.278.)

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On silicates of sodium. 1912. (In International Congress of Applied Chemistry (Eighth)—Original communications, v.2, p.235–239.)

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The same, abstract translation. 1912. (In Chemiker-zeitung, v.36, p.1136.)

The same, abstract translation. 1913. (In Chemisches zentralblatt, v.84, ser.5, v.17, pt.1A, p.777.)

Deals with the preparation and recrystallization of several hydrates, especially that containing nine molecules of water.

Villon, A. M. *comp.*

Dictionnaire de chimie industrielle; contenant les applications de la chimie à l'industrie, à la métallurgie, à l'agriculture, à la pharmacie, à la pyrotechnie et aux arts et métiers [completed by Pierre Guichard]. 3v. [1893–1902.] Tignol, Paris.

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Wagner, Rudolf von.

Handbook of chemical technology; translated by William Crookes. 745 p. 1872. Appleton.

"Water-glass," p.283–285.

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Das wasserglas und seine verwendung. 1913. (In Zeitschrift für angewandte chemie, v.26, pt.2, referatenteil, p.172.)

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Water glass. 1882. (In Scientific American supplement, v.13, p.5061.)

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Dictionary of chemistry; revised by M. M. P. Muir and H. F. Morley. 4v. 1892–94. Longmans.

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Waarenlexikon der chemischen industrie und der pharmacie, mit berücksichtigung der wichtigsten nahrungs- und genussmittel, unter mitwirkung Joseph Moeller [und anderen]; hrsg. von T. F. Hanausek. Ed.2, revised. 1000 p. 1892. Haessel, Leipsic.

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Sodium and sodium compounds in 1919. 1920. (In United States—Geological survey. Mineral resources, calendar year 1919, pt.2, p.47–76.)

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Wurtz, Charles Adolphe, *comp.*

Dictionnaire de chimie pure et appliquée, avec supplément. 7v. [n. d.] Hachette, Paris.

"Silicates de potassium," v.4, p.1144–1145.

"Silicates de sodium," v.4, p.1530–1531.

Water-glass is discussed under potassium silicates.

Yorke, Philip.

Researches on silica. 1857. (In Philosophical transactions of the Royal Society of London, v.147, p.533–542.)

The same, abstract. 1857. (In Chemical gazette, v.15, p.279–280.)

The same, abstract. 1857. (In Proceedings of the Royal Society of London, v.8, p.440–442.)

An attempt to determine the formula of silica, in which silica was fused with sodium and potassium carbonates and hydroxides. Includes a description of a hydrate of sodium silicate.

Properties

Bastian, H. Charlton.

Origin of life; being an account of experiments with certain superheated saline solutions in hermetically sealed vessels. 119 p. 1911. Putnam. (Science series.)

An attempt to prove "spontaneous generation" of life. Very dilute solutions of sodium silicate with other salts were used. Contains microphotographs of the growths formed.

Bogue, Robert Herman.

Hydrolysis of the silicates of sodium. 1920. (In Journal of the American Chemical Society, v.42, pt.2, p.2575–2582.)

The same, abstract. 1921. (In Chemical abstracts, v.15, p.480.)

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The same, abstract translation. 1921. (In Chemisches zentralblatt, v.92, ser.6, v.3, pt.1A, p.520–521.)

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Paper presented before the New York meeting of the American Chemical Society, September 6–10, 1921.

Investigation of the degree of swelling, viscosity, alcohol number, and hydrogen-ion concentration of gelatin treated with sodium silicates, in which the molecular ratio of sodium oxide to silica was varied from 1:4 to 1:1.

Bolley, P.

Ueber ein verhältniss, unter welchem die silicate der alkalischen erden ziemlich leichtlöslich sind. 1858. (In Annalen der chemie und pharmacie, v.106, p.223–227.)

The same, translated. 1858. (In Chemical gazette, v.16, p.347–349.)

The same, abstract translation. 1858. (In Répertoire de chimie appliquée, v.1, p.31.)

Deals with the solubility of silicates of the alkaline earths precipitated by means of water-glass from solutions of alkaline earth salts upon addition of an excess of water-glass.

Braun, Karl.

Zum gehalt des käuflichen natronwasserglases von 38–40° Bé. 1905. (In Chemisches central-blatt, v.76, ser.5, v.9, pt.1, p.1050.)

Abstract from "Seifensiederzeitung," v.32, p.178, 198–199.

Comey, Arthur Messinger, & **Hahn,** D. A.

Dictionary of chemical solubilities; inorganic. Ed.2, revised and enlarged. 1141 p. 1921. Macmillan.

"Sodium silicate," p.808–809, contains much valuable information on the effects of various compounds on solutions of sodium silicate.

Ditz, Hugo.

Die angebliche bildung von persilikat bei der einwirkung von luft auf natriumsilikatlösungen. 1915. (In Journal für praktische chemie, v.200, n. s. v.92, p.412–418.)

The same, abstract. 1916. (In Chemisches zentralblatt, v.87, ser.5, v.20, pt.1A, p.358–359.)

The same, abstract translation. 1917. (In Bulletin de la Société Chimique de France, v.113, ser.4, v.22, p.509.)

The same, abstract translation. 1916. (In Chemical abstracts, v.10, pt.2, p.1819.)

The same, abstract translation. 1916. (In Journal of the Chemical Society, v.110, pt.2, p.99.)

The same, abstract translation. 1916. (In Journal of the Society of Chemical Industry, v.35, pt.1, p.253.)

Dollfus, Robert.

Action des silicates alcalins sur les sels métalliques solubles. 1906. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.143, p.1148–1149.)

The same, abstract translation. 1907. (In Chemical abstracts, v.1, pt.1, p.697–698.)

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The same, abstract translation. 1907. (In Chemisches zentralblatt, v.75, ser.5, v.11, pt.1A, p.610.)

The same, abstract translation. 1907. (In Journal of the Chemical Society, v.92, pt.2, p.83–84.)

Results of work done from 1865 to 1867. Shows that plant-like growth similar to the Traube growth is formed.

English, S. & **Turner,** W. E. S.

Effect of silica and sodium oxide on the thermal expansion of glasses. 1921. (In Journal of the Society of Glass Technology, v.5, transactions, p.121–123.)

Gives expansion coefficients of seven sodium silicate glasses. Many of the other papers published by W. E. S. Turner and his colleagues in this journal contain data on the properties of a sodium silicate glass with a silica content of approximately seventy-four per cent.

English, S. *and others.*

Influence of silica on the annealing temperature of glass. 1920. (In Journal of the Society of Glass Technology, v.4, transactions, p.387–391.)

Gives results of investigation carried out with sodium silicate glasses.

Fluckiger, F. A.

On some reactions of soluble glass. 1871. (In American chemist, v.2, p.64.)

The same. 1871. (In Bulletin mensuel de la Société Chimique de Paris, v.20, n. s. v.15, p.188–190.)

The same. 1872. (In Chemical news, v.25, p.212–213.)

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The same. 1870. (In Polytechnisches journal, v.198, ser.4, v.48, p.236–238.)

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See also Heintz, W.

Fluckiger, F. A.

Solution of water glass. 1870. (In Chemical news, v.22, p.239.)

The same. 1870. (In Chemisches central-blatt, v.41, ser.3, v.1, p.639.)

Abstracts from "Neues repertorium für pharmacie," v.19, p.260, which deal with curious phenomena caused by treating with a solution of sodium nitrate.

Friedel, Charles, & **Friedel,** Georges.

Action des alcalis et des terres alcalines, des silicates alcalins et de quelques solutions salines sur le mica; production de la néphéline, de la sodalithe, de l'amphigène, de l'orthose, de l'anorthite. 1890. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.110, p.1170–1178.)

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Gottwald, W.

Reactions between solutions of sodium silicate and aluminium sulfate or chloride. 1916. (In Chemical abstracts, v.10, pt.1, p.726.)

The same. 1915. (In Chemisches zentralblatt, v.86, ser.5, v.19, pt.2A, p.595.)

Both of the above are abstracts of an article in "Neues jahrbuch für mineralogie, geologie und paläontologie," 1915, II, Ref. p.51–53, reviewing a dissertation presented at Erlangen in 1913.

Gottwald, W.

Ueber umsetzungen zwischen lösungen von natriumsilikat und aluminiumsulfat oder -chlorid. 1913. (In Silikat-zeitschrift, v.1, p.190–192.)

Abstract of the dissertation mentioned in the preceding article.

Greiner, E.

Relation between viscosity and chemical composition of silicate melts. 1909. (In Journal of the Society of Chemical Industry, v.28, pt.1, p.138.)

The same. 1909. (In Chemisches zentralblatt, v.80, ser.5, v.13, pt.1A, p.258.)

Abstracts from "Neues jahrbuch für mineralogie, geologie u. paläontologie," 1908, II, p.152–153. Includes viscosity of mixtures of sodium silicate with different substances.

Grenet, L.

Fusibilité des verres. 1898. (In Bulletin de la Société d'Encouragement pour l'Industrie Nationale, v.97, ser.5, v.3, pt.2, p.1507–1523.)

The same, abstract. 1904. (In L. Babu's Traité théorique et pratique de métallurgie générale, v.1, p.498–502.)

Investigation of the effect of temperature on different glasses, including sodium and potassium silicates.

Guertler, W.

Über entglasung. 1904. (In Zeitschrift für anorganische chemie, v.40, p.268–279.)

The same, abstract translation. 1920. (In Journal of the Society of Glass Technology, v.4, abstracts and reviews, p.18–19.)

Includes data on the devitrification of sodium metasilicate.

Haushofer, K.

Ueber einige künstliche silicate. 1866. (In Journal für praktische chemie, v.99, p.241–243.)

Obtains a number of silicates of the earths and metals by adding water-glass to solutions of their salts.

Heintz, W.

On Flückiger's water-glass reactions. 1871. (In Journal of the Chemical Society, v.24, n. s. v.9, p.493–494.)

The same. 1871. (In Chemisches central-blatt, v.42, ser.3, v.2, p.323.)

The same. 1871. (In Polytechnisches journal, v.200, ser.4, v.50, p.396–398.)

See also "Chemical news," v.24, p.46.

These are abstracts from "Arch. pharm." ser.2, v.146, p.1 and Buchner's "Neues repertorium für pharmacie," v.20, p.220 respectively.

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Heydweiller, Adolf.

Über physikalische eigenschaften von lösungen in ihrem zusammenhang.

pt.3. Die ionenmoduln der dichte im wasser. 1912. (In Annalen der physik, v.354, ser.4, v.37, p.739–771.)

pt.4. Refraktion, dispersion und dissoziation von salzen im wasser. 1913. (In Annalen der physik, v.358, ser.4, v.41, p.499–542.)

Includes data, in tabular form, for sodium silicate.

Hofman, H. O.

General metallurgy. 909 p. 1913. McGraw.

"Sodium and potassium silicates," p.439–440. Describes several properties, giving melting points and "formation temperature" curves.

Jaeger, F. M.

Melting temperatures of sodium and lithium metasilicates. 1911. (In Journal of the Washington Academy of Sciences, v.1, p.49–52.)

The same, abstract. 1911. (In Chemical abstracts, v.5, pt.3, p.3770–3771.)

The same, abstract. 1911. (In Journal of the Chemical Society, v.100, pt.2, p.981–982.)

The same, abstract translation. 1911. (In Chemisch-technisches repertorium, v.35, p.466.)

Jean, F.

Sur une falsification du silicate de soude. 1880. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.90, p.929–930.)

Brief note, giving analysis of a sample containing two per cent of soap, added apparently to thicken the solution.

Jordis, Eduard.

Über die erscheinung der "adsorption," des "alterns" und der "gewöhnung" bei kolloiden. 1908. (In Zeitschrift für angewandte chemie, v.21, pt.2, p.1982–1986.)

The same, abstract. 1908. (In Chemisch-technisches repertorium, v.32, p.521.)

The same, abstract translation. 1909. (In Bulletin de la Société Chimique de France, v.97, ser.4, v.6, p.3.)

The same, abstract translation. 1908. (In Chemical abstracts, v.2, pt.3, p.3302.)

Study of the double decomposition between solutions of sodium silicate and ferric chloride in order to explain adsorption, aging, and habituation among colloids.

Jordis, Eduard.

Über die möglichkeit von persilicaten. 1914. (In Chemiker-zeitung, v.38, p.221–222.)

The same, abstract. 1914. (In Chemisches zentralblatt, v.85, ser.5, v.18, pt.1A, p.1155.)

The same, abstract. 1914. (In Silikat-zeitschrift, v.2, p.55–56.)

The same, abstract. 1914. (In Zeitschrift für angewandte chemie, v.27, pt.2, referatenteil, p.270.)

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Jordis, Eduard—*continued.*

The same, abstract translation. 1914. (In Journal of the Society of Chemical Industry, v.33, pt.1, p.253.)

Finds that concentrated solutions of sodium silicate absorb oxygen when exposed to the air for several months.

See also Ditz, Hugo.

Kahlenberg, Louis, & **Lincoln,** A. H.

Solutions of silicates of the alkalies. 1898. (In Journal of physical chemistry, v.2, p.77–90.)

The same. 1898. (In Chemical news, v.78, p.31–33, 41–43.)

The same, abstract. 1899. (In Journal of the Chemical Society, v.76, pt.2, p.95.)

The same, abstract translation. 1898. (In Bulletin de la Société Chimique de Paris, v.75, ser.3, v.20, p.584–585.)

The same, abstract translation. 1898. (In Chemisches central-blatt, v.69, ser.5, v.2, pt.2, p.164.)

The same, abstract translation. 1898. (In Zeitschrift für angewandte chemie, v.11, p.972.)

The same, abstract translation. 1901. (In Zeitschrift für physikalische chemie, v.36, p.109.)

Investigation of the freezing-points and electrical conductivities of the above solutions undertaken in order to throw more light on the nature of silicates in solution.

Klooster, H. S. van.

Über die binären systeme. 1910. (In Zeitschrift für anorganische chemie, v.69, p.135–157.)

The same, abstract. 1911. (In Chemisches zentralblatt, v.82, ser.5, v.15, pt.1A, p.376.)

The same, abstract translation. 1911. (In Bulletin de la Société Chimique de France, v.101, ser.4, v.10, p.1080–1081.)

The same, abstract translation. 1911. (In Chemical abstracts, v.5, pt.1, p.1031.)

The same, abstract translation. 1911. (In Chemical news, v.103, p.95.)

The same, abstract translation. 1911. (In Journal of the Chemical Society, v.100, pt.2, p.111.)

Among the systems considered are sodium metasilicate with sodium metaborate, and with sodium tungstate.

Kohlrausch, F.

Über lösung von natrium-silikaten; insbesondere auch über einen einfluss der zeit auf deren constitution. 1892. (In Annalen der physik und chemie, v.295, n. s. v.47, p.756–764.)

The same, enlarged. 1893. (In Zeitschrift für physikalische chemie, v.12, p.773–791.)

The same, abstract. 1893. (In Berichte der Deutschen Chemischen Gesellschaft, v.26, referate, p.138–139.)

The same, abstract. 1893. (In Chemisches central-blatt, v.64, ser.4, v.5, pt.1, p.74–75.)

The same, abstract translation. 1893. (In Journal of the Chemical Society, v.64, pt.2, p.166.)

Electrical conductivity measurements.

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Kultascheff, N. V.

Über die schmelzpunkte von calciumsilikat, natriumsilikat und ihren mischungen. 1903. (In Zeitschrift für anorganische chemie, v.35, p.187–193.)

The same, abstract. 1903. (In Chemisches central-blatt, v.74, ser.5, v.7, pt.2, p.12.)

The same, abstract translation. 1904. (In Bulletin de la Société Chimique de Paris, v.87, ser.3, v.32, p.200.)

The same, abstract translation. 1903. (In Journal of physical chemistry, v.7, p.544.)

The same, abstract translation. 1903. (In Journal of the Chemical Society, v.84, pt 2, p.545–546.)

Determination by means of a Le Chatelier thermo-element.

Liesegang, Raphael Ed.

Kieselsäure-niederschläge aus wasserglas. 1913. (In Silikat-zeitschrift, v.1, p.125–129.)

See also v.1, p.230.

The same, abstract. 1913. (In Chemisches zentralblatt, v.84, ser.5, v.17, pt.2A, p.1119.)

The same, abstract translation. 1913. (In Chemical abstracts, v.7, pt.3, p.4053.)

Liesegang, Raphael Ed.

Umsetzungen zwischen natriumsilicat- und eisenchloridlösungen. 1913. (In Journal für praktische chemie, v.196, n. s. v.88, p.358–360.)

The same, abstract. 1913. (In Chemisch-technisches repertorium, v.37, p.651.)

The same, abstract. 1913. (In Chemisches zentralblatt, v.84, ser.5, v.17, pt.2B, p.1454.)

The same, abstract translation. 1913. (In Journal of the Chemical Society, v.104, pt.2, p.861.)

The same, abstract translation. 1913. (In Journal of the Society of Chemical Industry, v.32, pt.2, p.909.)

Of interest in connection with the work of Jordis.

Liesegang, Raphael Ed. & **Renck,** J.

Enhydros-bildung. 1912. (In Centralblatt für mineralogie, geologie und paläontologie, 1912, p.193–198.)

The same, abstract. 1912. (In Chemisches zentralblatt, v.83, ser.5, v.16, pt.1B, p.1733–1734.)

Includes the reaction between water-glass and ferric chloride solutions.

Lincke, P.

Ueber die umsetzungen zwischen natriumsilikat- und eisenchloridlösungen. 1913. (In Silikat-zeitschrift, v.1, p.190.)

Abstract of a dissertation presented at Erlangen in 1908.

Loomis, E. H.

Freezing-points of dilute aqueous solutions. pt.3. 1897. (In Physical review, v.4, p.273–296.)

Includes data for sodium silicate, p.282–284

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Loomis, E. H.—*continued.*

The same, abstract. 1897. (In Journal of the Chemical Society, v.72, pt.2, p.305–306.)

The same, translated. 1897. (In Annalen der physik und chemie, v.308, n. s. v.60, p.523–546.)

The same, abstract translation. 1897. (In Chemisches central-blatt, v.68, ser.5, v.1, pt.1, p.1118.)

The same, abstract translation. 1897. (In Zeitschrift für physikalische chemie, v.23, p.172–173.)

Massie, M.

Note on the silicates of potassium and sodium. 1876. (In Journal of the Chemical Society, v.29, p.120–121.)

Abstract from "Journal de pharmacie et de chimie," ser.4, v.21, p.94–96. Gives composition and properties of several commercial solutions.

Mixter, W. G.

The heat of combustion of silicon and silicon carbide. 1907. (In American journal of science, v.174, ser.4, v.24, p.130–140.)

Includes data on the heat of formation of sodium orthosilicate.

Monier, E.

Action de l'acide oxalique sur le silicate de soude, quartz hydraté. 1877. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.85, p.1053–1054.)

The same, abstract. 1878. (In Bulletin de la Société Chimique de Paris, v.35, n. s. v.30, p.230–231.)

The same, abstract translation. 1877. (In Chemical news, v.36, p.286–287.)

The same, abstract translation. 1878. (In Chemisches central-blatt, v.49, ser.3, v.9, p.67.)

The same, abstract translation. 1878. (In Journal of the Chemical Society, v.34, p.198.)

See also following reference.

Monier, E.

Silice hydratée transparente et opale hydrophane, obtenue par l'action de l'acide oxalique sur les silicates alcalins. 1878. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.86, p.1318–1319.)

The same. 1878. (In Le Moniteur scientifique, v.20, ser.3, v.8, p.804.)

The same, abstract translation. 1878. (In Chemical news, v.38, p.8.)

The same, abstract translation. 1878. (In Chemisches central-blatt, v.49, ser.3, v.9, p.498.)

The same, abstract translation. 1878. (In Journal of the Chemical Society, v.34, p.770.)

Moore, Benjamin.

Production of growths or deposits in metastable inorganic hydrosols. 1915. (In Proceedings of the Royal Society of London, ser.B, v.89, p.27–35.)

Continuation of experiments reported in following paper.

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Moore, Benjamin, & **Evans,** W. G.

On forms of growth resembling living organisms and their products slowly deposited from metastable solutions of inorganic colloids. 1915. (In Proceedings of the Royal Society of London, ser.B, v.89, p.17–27.)

An account of experiments similar to those of Bastian, in which very dilute solutions of sodium silicate were used.

Gives microphotographs.

Mulert, Otto.

Über die thermochemie der kieselsäure und der silikate. 1912. (In Zeitschrift für anorganische chemie, v.75, p.198–240.)

Gives the heat of formation of sodium silicate, p.238.

The same, abstract. 1912. (In Chemisches zentralblatt, v.83, ser.5, v.16, pt.2A, p.320–321.)

The same, abstract translation. 1912. (In Chemical abstracts, v.6, pt.3, p.2884.)

The same, abstract translation. 1912. (In Journal of the Chemical Society, v.102, pt.2, p.626–627.)

The same, abstract translation. 1912. (In Journal of the Society of Chemical Industry, v.31, pt.1, p.533–534.)

Mylius, F.

Ueber das wasserglas. 1906. (In Atti del VI Congresso Internazionale di Chimica Applicata, v.1, p.677–686.)

The same, abstract. 1908. (In Zeitschrift für angewandte chemie, v.21, pt.2, p.1757.)

The same, abstract translation. 1908. (In Chemical abstracts, v.2, pt.2, p.1604.)

The abstracts are from "Sprechsaal," v.41, p.140–142.

Deals with certain chemical and physical properties.

Mylius, F. & **Foerster,** F.

Ueber die löslichkeit der kali- und natrongläser in wasser. 1889. (In Zeitschrift für instrumentenkunde, v.9, p.117–122.)

"Kali- und natronwasserglas," p.117–118. Data given in table on p.119.

A more detailed presentation is given in the following article.

An abstract of these papers can be found in H. Hovestadt's "Jenaer glas und seine verwendung in wissenschaft und technik," p.356–357.

Mylius, F. & **Foerster,** F.

Ueber die löslichkeit von glas in wasser. 1889. (In Berichte der Deutschen Chemischen Gesellschaft, v.22, pt.1, p.1092–1112.)

On p.1093–1100, the authors give data on the solubility of soda and potash waterglasses and discuss their dissociation in aqueous solution.

The same, abstract translation. 1889. (In Journal of the Chemical Society, v.56, p.828–829.)

Mylius, F. & **Groschuff,** E.

A- und B-kieselsäure in lösung. 1906. (In Berichte der Deutschen Chemischen Gesellschaft, v.39, pt.1, p.116–125.)

The same, abstract. 1906. (In Chemisches central-blatt, v.77, ser.5, v.10, pt.1A, p.639–640.)

The same, abstract translation. 1906. (In Bulletin de la Société Chimique de Paris, v.91, ser.3, v.36, p.1207–1208.)

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Mylius, F. & **Groschuff,** E.—*continued.*

The same, abstract translation. 1906. (In Journal of the Chemical Society, v.90, pt.2, p.160–161.)

Includes the kinds of silicic acids present in the different types of alkali silicates and in commercial water-glass.

Mylius, F. & **Groschuff,** E.

Über entstehung und veränderung von wasserhaltigen glase. 1907. (In Zeitschrift für anorganische chemie, v.55, p.101–118.)

The same, abstract. 1907. (In Chemisches zentralblatt, v.78, ser.5, v.11, pt.2B, p.1274–1275.)

Includes brief consideration of water-glass.

Peddle, C. J.

Development of various types of glass. pt.1: Interaction of silica with the oxides of sodium and potassium. 1920. (In Journal of the Society of Glass Technology, v.4, transactions, p.3–20.)

The same, abstract. 1920. (In Chemical abstracts, v.14, pt.2, p.2536.)

The same abstract. 1920. (In Journal of the American Ceramic Society, v.3, p.681–682.)

Presents valuable data obtained on a series of sodium silicate glasses in which the molecular ratio of sodium oxide to silica was varied between 1:5 and 1:1. The properties investigated were density, refractive index, devitrification, solubility, durability, and pot attack. Similar studies were made on potassium silicate glasses and on double silicate glasses containing potassium and sodium.

Pratalongo, Ugo.

Absorption compounds (van Bemmelen). 1912. (In Chemical abstracts, v.6, pt.1, p.447.)

The same. 1912. (In Bulletin de la Société Chimique de France, v.103, ser.4, v.12, pt.2, p.835–836.)

The same. 1912. (In Chemisches zentralblatt, v.83, ser.5, v.16, pt.1A, p.768–769.)

The same. 1911. (In Journal of the Chemical Society, v.100, pt.2, p.1069–1070.)

All of these are abstracts from "Gazzetta chimica italiana," v.41, pt.2, p.382–412. A study of the products which are precipitated by bringing together solutions of sodium silicate and sodium aluminate.

Quincke, G.

Ueber unsichtbare flüssigkeitsschichten und die oberflächenspannung flüssiger niederschläge bei niederschlagmembranen, zellen, colloiden und gallerten. 1902. (In Annalen der physik, v.312, ser.4, v.7, p.631–682.)

Part of a serial article. Includes investigations made with solutions of potassium and sodium silicates and salts of metals, p.662–680. Gives sketches of the growths formed.

Ross, W. J. C.

Experiments with sodium silicate. 1912. (In Journal of the Chemical Society, v.102, pt.2, p.49.)

The same, abstract. 1912. (In Chemical abstracts, v.6, pt.2, p.1575.)

Abstract from "Journal of the Proceedings of the Royal Society of New South Wales," v.44, p.583–592. Descriptions of growths formed on dropping crystals of various salts into solutions of sodium silicate.

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Scheurer-Kestner, A.

Note sur la préparation et l'emploi du silicate de soude. 1863. (In Répertoire de chimie appliquée, v.5, p.150–152.)

The same, abstract translation. 1863. (In Polytechnisches journal, v.170, p.154–155.)

Investigation of the composition of solutions of different specific gravities.

Schwarz, Robert, & **Bausch,** Hans.

Über die einführung der kieselsäure in den kern komplexer verbindungen. 1921. (In Berichte der Deutschen Chemischen Gesellschaft, v.54, p.802–813.)

The same, abstract. 1921. (In Chemisches zentralblatt, v.92, ser.6, v.3, pt.1B, p.983–984.)

The same, abstract translation. 1922. (In Ceramic abstracts, v.1, p.63–64.)

The same, abstract translation. 1921. (In Chemical abstracts, v.15, p.3950–3951.)

Study of the reactions of sodium silicate with complex compounds of known constitution.

Segerblom, Wilhelm.

Tables of properties of over 1,500 common inorganic substances. 144 p. 1909. Exeter Book Pub. Co.

Properties of sodium and potassium silicates given very briefly on p.13.

Seidell, Atherton, *comp.*

Solubilities of inorganic and organic substances; a compilation of quantitative solubility data from the periodical literature. Ed.2, revised and enlarged. 843 p. 1919. Van Nostrand.

"Sodium silicate," p.665. For other references see the index.

Smith, D. P.

Über die einwirkung von titansäureanhydrid auf natriumkarbonat. 1903. (In Zeitschrift für anorganische chemie, v.37, p.332–336.)

Includes the results of the investigation of the effect of carbon dioxide on sodium silicate, p.335–336.

Sperber, J.

Verdrängung von "säuren" durch wasserstoffsuperoxyd. 1913. (In Chemisch-technisches repertorium, v.37, p.488.)

The same. 1913. (In Chemisches zentralblatt, v.84, ser.5, v.17, pt.1B, p.1490–1491.)

Both are abstracts from "Schweizerische wochenschrift für chemie und pharmazie," v.51, p.166–169. They include the action of hydrogen peroxide on water-glass.

Spezia, Giorgio.

Solubility of quartz in sodium silicate solutions. 1900. (In Journal of the Chemical Society, v.78, pt.2, p.595.)

The same. 1901. (In Chemisches central-blatt, v.72, ser.5, v.5, pt.1, p.908.)

Both are abstracts from "Atti della R. Accademia delle Scienze di Torino," 1900, v.35, p.750–761. The English abstract is only a brief note.

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Steele, H. & **Mellor,** J. W.

Slop weight and specific gravity of solutions of water glass. 1914–15. (In Transactions of the English Ceramic Society, v.14, p.164–166.)

The purpose is to find a relation between the slop weight of an average commercial sample of water-glass and its dry contents. Presents data in tabular form.

Stericker, William.

Relation of structure to free alkali in sodium silicate solutions. 1921. (In Chemical and metallurgical engineering, v.25, p.61–62.)

See also v.24, p.830–831.

Stifler, W. W.

Tests on certain electrical insulators at high temperatures. 1911. (In Physical review, v.32, p.429–432.)

Includes tests on sodium silicate, the results showing that it breaks down rapidly above 200° or 250°C.

Struckmann, C.

Ueber die zersetzung der alkalischen silicate durch kohlensäure, und über die löslichkeit der kieselsäure in reinem wasser, so wie bei gegenwart von salzsäure, kohlensäure, ammoniak, salmiak und bicarbonaten. 1855. (In Annalen der chemie und pharmacie, v.94, p.337–347.)

The same, translated. 1855. (In Chemical gazette, v.13, p.261–266.)

The same, abstract translation. 1855. (In Pharmaceutical journal and transactions, v.15, p.82–84.)

Vail, James G.

Some properties of commercial silicate of soda. 1919. (In Journal of industrial and engineering chemistry, v.11, p.1029–1031.)

The same, abstract. 1919. (In Journal of the Society of Glass Technology, v.3, abstracts and reviews, p.237.)

An abstract in "Chemical and metallurgical engineering" under this title has the same subject-matter as James G. Vail's "Uses of water-glass," p.46.

Includes a discussion of the uses of sodium silicate as related to its properties.

Wallace, R. C.

High temperature work on the silicates. 1909–10. (In Transactions of the English Ceramic Society, v.9, p.172–197.)

The same, abstract. 1919. (In Journal of the Society of Glass Technology, v.3, abstracts and reviews, p.238–239.)

Subject-matter is similar to that of the following paper.

Wallace, R. C.

Über die binären systeme des natriummetasilicats mit lithium-, magnesium-, calcium-, strontium- und bariummetasilicat; des lithiummetasilicats mit kalium-, magnesium-, calcium-, strontium- und bariummetasilicat. 1909. (In Zeitschrift für anorganische chemie, v.63, p.1–48.)

The same, abstract. 1909. (In Chemisches zentralblatt, v.80, ser.5, v.13, pt.2A, p.415–417.)

The same, abstract translation. 1910. (In Bulletin de la Société Chimique de France, v.99, ser.4, v.8, p.757–759.)

The same, abstract translation. 1909. (In Chemical abstracts, v.3, pt.2, p.2788.)

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Wallace, R. C.—*continued.*

The same, abstract translation. 1909. (In Journal of the Chemical Society, v.96, pt.2, p.665–666.)

The same, abstract translation. 1909. (In Journal of the Society of Chemical Industry, v.28, pt.2, p.793.)

Gives data, as determined for these systems, in tables and curves.

Manufacture

Benrath, H. E.

Die glasfabrikation. 495 p. 1880. Vieweg & Sohn, Brunswick, Germany. (Handbuch der chemischen technologie; hrsg. von P. A. Bolley und anderen.)

Water-glass manufacture, p.178–182.

Bergeat, Christ.

Ueber die bereitung von schwefelsaurer thonerde und wasserglas aus Passauer thon. 1858. (In Polytechnisches journal, v.150, p.394–395.)

From "Böttger's polytechnisches notizblatt," 1858, no.16. Includes preparation of water-glass from clay in the Passau district.

Bloxam, Charles L.

On the action of boracic acid upon the carbonates of the alkalies and alkaline earths. 1860. (In Quarterly journal of the Chemical Society, v.12, p.177–198.)

Includes records of experiments on the action of silica on sodium and potassium carbonates, p.196–198.

Bloxam, Charles L.

On the amount of water displaced from the hydrates of potash, soda and baryta by boracic and silicic acids. 1862. (In Quarterly journal of the Chemical Society, v.14, p.143–153.)

Study of the reactions at red heat.

British admiralty hydrogen gas plant. 1919. (In Engineering, v.107, p.103.)

Illustrated description of a plant in which water-glass is obtained as a by-product. Reprinted in part in "Chemical and metallurgical engineering," v.20, p.289–290, and in "Iron age," v.103, pt.1, p.608.

Capitaine, F.

Continuirlicher schmelzofen für chemische und metallurgische zwecke. 1877. (In Dingler's polytechnisches journal, v.224, ser.5, v.24, p.295–296.)

Description, with plate, of a continuous furnace which can be used for water-glass manufacture.

Capitaine, F.

Ueber die herstellung von wasserglas aus infusorienerde. 1876. (In Dingler's polytechnisches journal, v.222, ser.5, v.22, p.363–366.)

The same, abstract. 1877. (In Neueste erfindungen und erfahrungen, v.4, p.181.)

The same, condensed translation. 1878. (In Journal of the Society of Arts, v.26, p.112.)

The same, condensed translation. 1878. (In Pharmaceutical journal and transactions, v.37, ser.3, v.8, p.569.)

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Capitaine, F.—*continued.*

The same, abstract translation. 1877. (In Bulletin de la Société Chimique de Paris, v.32, n. s. v.27, p.476–477.)

The same, abstract translation. 1877. (In Journal of the Chemical Society, v.31, p.757.)

Preparation of water-glass by treating infusorial earth with caustic soda having a specific gravity of 1.2 under a pressure of three atmospheres.

Caven, R. M.

Soluble glass. 1918. (In Journal of the Society of Chemical Industry, v.37, p.63T–67T.)

Discussion, p.67T–68T.

The same, abstract. 1918. (In Chemical abstracts, v.12, pt.2, p.1414.)

The same, abstract. 1918. (In Journal of the Society of Glass Technology, v.2, abstracts and reviews, p.13–14.)

Concerned with the manufacture of water-glass.

Chance, Henry.

On the manufacture of glass. 1868. (In Journal of the Chemical Society, v.21, n. s. v.6, p.242–260.)

Includes a discussion of several processes for making sodium silicate from common salt, p.254–255.

Cobb, John W.

Synthesis of a glaze, glass or other complex silicate. pt.4: Interaction of soda with silica and with alumina. 1910. (In Journal of the Society of Chemical Industry, v.29, p.399–403.)

Discussion, p.404.

Includes a study of the formation of sodium silicate from sodium carbonate and from sodium sulphate by means of silica, p.400–401.

Cole, L. Heber.

Minerals used in making pulp and paper. 1918. (In Paper trade journal, v.66, Feb. 7, 1918, p.315, 317, 319, 321, 323, 325.)

Outlines the manufacture of water-glass, p.319.

Crispo, D.

Réaction nouvelle pour la production du carbonate de soude. 1908. (In Bulletin de la Société Chimique de Belgique, v.22, p.292–295.)

The same, abstract translation. 1909. (In Chemical abstracts, v.3, pt.1, p.361.)

The same, abstract translation. 1908. (In Chemisch-technisches repertorium, v.32, p.452–453.)

The same, abstract translation. 1908. (In Journal of the Society of Chemical Industry, v.27, pt.2, p.854.)

Production of sodium carbonate from water-glass and chalk. Also gives details of a process for preparing sodium silicate from sodium sulphate, sand, and charcoal.

Directe herstellung von natronwasserglas aus chlornatrium. 1887. (In Chemiker-zeitung, v.11, pt.1, p.379.)

Very brief note.

Dralle, Robert, *ed.*

Die glasfabrikation. 2v. 1911. Oldenbourg, Munich.

"Wasserglasfabrikation," v.2, chapter 17, p.1250–1269.

Deals mostly with descriptions and plans, estimates of cost of construction and operation, and profits of works of different capacities.

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Fabrication du verre soluble (silicate de soude). 1885. (In Le Génie civil, v.7, p.95.)

Fischer, Franz, (*pseud.* Wilhelm Martens).

Die fabrikation und raffinirung des glases. 390 p. 1889. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.172.)

"Das wasserglas," p.234–240.

Gelstharp, F.

Some chemical reactions of interest to the plate glass chemist. 1912. (In Transactions of the American Ceramic Society, v.14, p.642–653.)

Discussion, p.653–654.

Includes the formation of sodium silicates from sand and soda ash; sand and salt-cake; sand, saltcake, and charcoal; and sand and moist common salt.

Goetschius, D. M.

Silicate of soda in flakes. 1922. (In Chemical age (N. Y.), v.30, p.102.)

Comment on United States patent no.1,403,556 granted to I. D. Lihme, a lengthy abstract of which is printed in v.30, p.58.

Griffiths, Hugh.

[Sodium silicate.] 1922. (In Journal of industrial and engineering chemistry, v.14, p.572.)

Brief note in the "London letter," regarding processes for making solid sodium silicate which can be dissolved readily.

See also Miall, Stephen.

Hydrogen from ferrosilicon. 1919. (In Iron age, v.103, pt.1, p.608.)

Article describing a British admiralty plant in which water-glass is obtained as a by-product. Reprinted in part from "Engineering," v.107, p.103.

Jordis, Eduard.

Über die darstellung krystallisierter natriumsilicate. 1907. (In Zeitschrift für angewandte chemie, v.20, pt.2, p.1410–1412.)

The same, abstract. 1907. (In Chemisches zentralblatt, v.78, ser.5, v.11, pt.2B, p.1364.)

The same, abstract translation. 1907. (In Bulletin de la Société Chimique de France, v.93, ser.4, v.2, p.1518.)

Valuable discussion on commercial preparation.

Knoblauch, Hugo.

Die praxis der wasserglasfabrikation auf dem schmelzwege. 1913. (In Zeitschrift für angewandte chemie, v.26, pt.1, aufsatzteil, p.250–254.)

The same, abstract. 1913. (In Chemisch-technisches repertorium, v.37, p.282.)

The same, abstract. 1913. (In Silikat-zeitschrift, v.1, p.116–117.)

The same, abstract translation. 1913. (In Journal of the Society of Chemical Industry, v.32, pt.1, p.599.)

Description, with diagrams, of the routine of the Siemens regenerative gas furnace as applied to the manufacture of water-glass.

Koller, Theodor.

Handbuch der rationellen verwerthung, wiedergewinnung und verarbeitung von abfallstoffen jeder art. Ed.2. 320 p. 1900. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.61.)

Manufacture of water-glass from infusorial earth is treated briefly on p.145.

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Koller, Theodor.

Utilization of waste products; translated from the second revised German edition by a technical chemist. Ed.3, revised and enlarged by H. B. Stocks. 338 p. 1918. Scott, Greenwood.

Manufacture of water-glass from infusorial earth, p.320–321.

Liebig, Justus.

Ueber die darstellung des wasserglases auf nassem wege. 1857. (In Annalen der chemie und pharmacie, v.102, n. s. v.26, p.101–104.)

The same. 1857. (In Chemisches central-blatt, v.28, n. s. v 2, pt.1, p.286–287.)

From "Buchner's neues repert.," v.6, p.64–67. There are some slight changes in this reprint.

The same. 1857. (In Polytechnisches journal, v.143, p.210–212.)

From "Bayerisches kunst- und gewerbeblatt," 1857, p.4.

The same, translated. 1858. (In Bulletin de la Société d'Encouragement pour l'Industrie Nationale, v.57, ser.2, v.5, p.179–181.)

The same, translated. 1857. (In Le Moniteur scientifique, v.1, p.262–264.)

In this translation the material has been slightly rearranged and some additions have been made.

Preparation of water-glass from infusorial earth and caustic soda.

Lunge, George.

Manufacture of sulphuric acid and alkali, with the collateral branches. Ed.3, enlarged. v.1–3 in 5. 1903–11. Gurney & J.

Includes (as an intermediate step in the manufacture of soda) the preparation of sodium silicate from common salt by means of silica and steam, v.3, p.238–242; from sodium sulphate by means of silica and coal, v.3, p.273–274, 282–283; from sodium nitrate by means of silica, v.3, p.320.

Maetz, O.

Water-glass manufacture. 1919. (In Chemical abstracts, v.13, pt.1, p.1129.)

The same. 1919. (In Journal of the Society of Chemical Industry, v.38, pt.1, p.72A.)

Abstracts from "Chemiker-zeitung," v.42, p.569–570, 582–583.

Mallard, E.

De l'action que la silice et quelques oxydes analogues exercent à une température élevée sur le carbonate de soude. 1873. (In Annales de chimie et de physique, v.268, ser.4, v.28, p.86–108.)

The same, abstract. 1872. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, p.472–474.)

Presented before the mineralogical section of the Academy.

The same, abstract translation. 1873. (In Journal of the Chemical Society, v.24, n.s. v.11, p.135.)

See also p.243–244.

Includes investigation of the equilibrium between silica and sodium carbonate during the formation of the silicate.

Miall, Stephen.

[Sodium silicate.] 1922. (In Journal of industrial and engineering chemistry, v.14, p.246.)

Brief note in the "London letter" regarding a new process for making solid sodium silicate without dissolving and evaporating.

See also Griffiths, Hugh.

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Niggli, Paul.

Phenomena of equilibria between silica and the alkali carbonates. 1913. (In Journal of the American Chemical Society, v.35, pt.2, p.1693–1727.)

The same, abstract. 1914. (In Chemical abstracts, v.8, pt.1, p.29–30.)

The same, abstract. 1913. (In Journal of the Chemical Society, v.104, pt.2, p.1036–1037.)

The same, translated. 1913. (In Zeitschrift für anorganische chemie, v.84, p.229–272.)

The same, abstract translation. 1914. (In Beiblätter zu den annalen der physik, v.38, pt.2, p.924–925.)

The same, abstract translation. 1914. (In Bulletin de la Société Chimique de France, v.107, ser.4, v.16, pt.1, p.130–131.)

See also p.204.

The same, abstract translation. 1914. (In Chemisches zentralblatt, v.85, ser.5, v.18, pt.1B, p.1546–1547.)

The same, abstract translation. 1914. (In Silikat-zeitschrift, v.2, p.100–102.)

A comprehensive physicochemical study of the reactions producing silicates.

Perazzo, A. A.

Manufacture of sodium silicate. 1921. (In Journal of the Society of Chemical Industry, v.40, p.387A.)

The same. 1922. (In Chemical abstracts, v.16, p.1296.)

Abstract from "Anales Soc. quim. Argentina," v.8, p.404–409. Deals with an improved plant for manufacture by fusion.

Production of hydrogen and water glass by the silicol process. 1919. (In Chemical and metallurgical engineering, v.20, p.289–290.)

The same, abstract. 1919. (In Chemical abstracts, v.13, p.1131.)

Illustrated description of a British admiralty hydrogen plant in which water-glass is obtained as a by-product. Reprinted in part from "Engineering," v.107, p.103.

Pukall, W.

Anorganische synthesen. 1914. (In Silikat-zeitschrift, v.2, p.65–76, 87–99, 109–118.)

The same, abstract translation. 1916. (In Chemical abstracts, v.10, pt.3, p.2332.)

The same, abstract translation. 1914. (In Journal of the Society of Chemical Industry, v.33, pt.2, p.863.)

Comprehensive article on the synthesis of the silicates, aluminates, stannates, ferrites, chromites, manganites, titanates, and zirconates of a number of metals. Potassium and sodium silicates are treated in the first part of the article.

Pukall, W.

Fortschritte und fortschrittliche bestrebungen auf dem gebiet der tonindustrie. 1910. (In Berichte der Deutschen Chemischen Gesellschaft, v.43, pt.2, p.2078–2106.)

Address delivered before the Deutschen Chemischen Gesellschaft on June 4, 1910. Includes the preparation of sodium metasilicate and of a number of the metallic silicates, p.2096–2098.

The same, abstract. 1910. (In Chemiker-zeitung, v.34, p.610–612.)

The same, abstract. 1910. (In Chemisch-technisches repertorium, v.34, p.411–412.)

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Pukall, W.—*continued.*

The same, abstract. 1910. (In Chemisches zentralblatt, v.81, ser.5, v.14, pt.2B, p.1099–1101.)

The same, abstract. 1910. (In Zeitschrift für angewandte chemie, v.23, pt.2, p.1319–1321.)

The same, abstract translation. 1910. (In Chemical abstracts, v.4, pt.2, p.3125–3126.)

The same, abstract translation. 1910. (In Journal of the Society of Chemical Industry, v.29, pt.2, p.1011.)

Sauerwein.

Ueber infusorienerde und deren verwendung zu wasserglas. 1864. (In Polytechnisches journal, v.172, p.396–397.)

Abstract from "Monatsblatt des Hanoverschen Gewerbevereins," 1864, no.1–2. Includes preparation of water-glass from infusorial earth.

Scheerer, T.

Versuche über die menge der kohlensäure, welche bei höherer temperatur aus kohlensauren alkalien durch kieselsäure und andere oxyde ausgetrieben wird, nebst folgerungen hinsichtlich der atomistischen zusammensetzung der kieselsäure. 1860. (In Annalen der chemie und pharmacie, v.116, p.129–161.)

The same, abstract. 1861. (In Chemisches central-blatt, v.32, n. s. v.6, pt.1, p.121–122.)

The same, abstract translation. 1861. (In Répertoire de chimie pure, v.3, p.251–253.)

Study of the reactions in which alkaline silicates are formed by the fusion of the corresponding carbonates and silica.

Scheurer-Kestner, A.

De l'action du carbone sur le sulfate de sodium, en présence de la silice. 1892. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.114, p.117–120.)

The same, abstract translation. 1892. (In Berichte der Deutschen Chemischen Gesellschaft, v.25, referate, p.105.)

The same, abstract translation. 1892. (In Chemical news, v.65, p.73.)

The same, abstract translation. 1892. (In Chemisches central-blatt, v.63, ser.4, v.4, pt.1, p.418.)

The same, abstract translation. 1892. (In Journal of the Chemical Society, v.62, p.565.)

The same, abstract translation. 1892. (In Journal of the Society of Chemical Industry, v.11, p.687.)

Investigation of the course of the reaction. The material in this paper is given in the first part of the following reference.

Scheurer-Kestner, A.

De l'action du carbone sur les sulfates alcalins en présence de la silice, et du carbone sur l'acide sulfureux; application à la préparation du silicate soluble et du verre. 1892. (In Bulletin de la Société Chimique de Paris, v.62, ser.3, v.7, p.190–196.)

The first part of this paper is practically the same as the preceding reference.

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Scheurer-Kestner, A.

Sur l'emploi de la gaize pour la préparation des silicates alcalins. 1871. (In Bulletin mensuel de la Société Chimique de Paris, v.20, n. s. v.15, p.18–20.)

The same. 1871. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.72, p.767–769.)

The same, abstract translation. 1871. (In Chemical news, v.24, p.21.)

The same, abstract translation. 1871. (In Journal of the Chemical Society, v.24, n. s. v.9, p.763–764.)

Account of experiments made to determine the feasibility of manufacturing soluble silicates from gaize by the wet way, the results indicating that this material is not suitable for such purposes.

Silicate of potassium. 1875. (In Proceedings of the American Pharmaceutical Association, v.23, p.257–258.)

Abstract from "Journal of applied chemistry," Oct. 1874, p.149. Describes the process of manufacture developed by Boissi and Berthelot.

Tscheuschner, E.

Handbuch der glasfabrikation nach allen ihren haupt- und nebenzweigen; mit einem atlas. Ed.5. 2v. 1885. Voigt, Weimar.

Water-glass, v.1, chapter 22, p.647–653.

Ungerer, Albert.

Ueber verwendung von kochsalz zur glasfabrication und darstellung von natronsilicaten direct aus kochsalz und kieselsäure oder anderen natürlichen und künstlichen silicaten. 1870. (In Polytechnisches journal, v.197, ser.4, v.47, p.343–346.)

Wasserglas-fabrikation. 1884. (In Chemiker-zeitung, v.8, pt.2, p.1229.)

The same, translated. 1884. (In Le Moniteur scientifique, v.26, ser.3, v.14, p.1123–1124.)

Brief article on industrial manufacture.

Wittorf, N. M. von.

Über die wirkung von kieselsäureanhydrid auf die schmelzen der alkalikarbonate. 1904. (In Zeitschrift für anorganische chemie, v.39, p.187–196.)

The same, abstract translation. 1904. (In Journal of the Chemical Society, v.86, pt.2, p.400–401.)

Examination of the equilibrium between silica and carbon dioxide when these compete for the same alkali oxide.

Applications

General and Miscellaneous

Arendt, Rudolf.

Technik der experimentalchemie; anleitung zur ausführung chemischer experimente. Ed.3, enlarged. 821 p. 1900. Leopold Voss, Hamburg.

Considers the decomposition of water-glass solutions by means of acids and the preparation of colloidal silicic acid, p.575–576.

Argles, Charles, *comp.*

Chemicals and industrial materials, with their commercial uses. [1921?] Privately printed.

Under "Water glass," in section "Industrial materials," lists applications briefly.

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Baudrimont.

Observations sur l'emploi du silicate potassique pour fixer des couleurs sur diverses matières et en faire une espèce d'encre indélébile. 1855. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.41, p.367–368.)

The same, translated. 1855. (In Polytechnisches journal, v.137, p.463–464.)

Böhm, C. Richard.

Die fabrikation der glühkörper für gasglühlicht; ein lehr- und handbuch aus der praxis für die praxis. 454 p. 1910. Knapp, Halle a. S. (Monographien über chemisch-technische fabrikationsmethoden.)

Deals with the use of sodium silicate in the manufacture of gas mantels, p.189–191. For other references see index.

Booth, William Henry.

Water softening and treatment; condensing plant, feed pumps and heaters for steam users and manufacturers. 308 p. 1906. Constable.

"Silicate of soda," p.27.

Capaun-Karlowa, C. F.

Chemisch-technische specialitäten und geheimnisse. Ed.3, revised and enlarged. 252 p. 1894. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.45.)

Includes material on water-glass cements, mortar, rosin size, size for fabrics and washing composition, p.242–245.

Farez.

Emploi du silicate de potasse pour donner de la solidité aux ossements fossiles. 1870. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.70, p.1094–1095.)

Feuchtwanger, Lewis.

Soluble glass and all its applications, containing directions for rendering wood and timber fire and dry rot proof, silicifying stones, mortars, concrete and hydraulic lime, white washes, paints and cements and how to protect wooden shingles, pavements, railroad sleepers, etc. 92 p. 1873. Privately printed.

By a manufacturer of water-glass in 1873.

Hager, Hermann.

Handbuch der pharmaceutischen praxis für apotheker, ärzte, drogisten und medicinalbeamte; vollständig neu bearbeitet und hrsg. von B. Fischer und C. Hartwick. 2v. 1910. Springer, Berlin.

"Natrium silicicum purum," v.1, p.109–111.

Deals mainly with its uses and gives a number of receipts for water-glass cements. *See also* v.1, p.108.

Hawley, L. F.

Effect of adding various chemicals to wood previous to distillation. 1922. (In Journal of industrial and engineering chemistry, v.14, p.43–44.)

Mentions sodium silicate only very briefly, the results obtained being similar to those obtained with sodium carbonate which is discussed much more fully.

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Hofmann, A. W.

Verfahren zum reinigen und weichmachen der wassers, von Buff und Versmann, chemikern in London. 1859. (In Polytechnisches journal, v.152, p.189–190.)

See also v.153, p.390.

From "Armengaud's publication industrielle," v.12, p.59. Purification and softening of water by means of a mixture of water-glass and sodium carbonate.

Hough, A. T.

Tanning with silica. 1921. (In Chemical abstracts, v.15, p.611.)

Abstract from "Le cuir," v.8, p.209, 257, 314.
Uses sodium silicate to form silicic acid.

Johnston.

On silicate of soda as a manure. 1845. (In The Chemist, v.6, n. s. v.3, p.413–415.)

From "Agricultural gazette," Aug. 9, 1845.

Kind, W.

Sodium silicate as preservative for preparations evolving oxygen. 1915. (In Chemical abstracts, v.9, pt.3, p.2971.)

Abstract from "Seifensieder-zeitung," v.42, p.598–599, giving results of experiments.

Knop, W.

Notiz über anwendung des wasserglases als körnerdüngung. 1857. (In Chemisches central-blatt, v.28, n. s. v.2, pt.1, p.337–339.)

The same. 1857. (In Polytechnisches journal, v.144, p.399–400.)

Report of investigations on the use of water-glass as a fertilizer.

Kolb, *and others.*

Rapport de la commission chargée de l'examen des procédés de silicatisation de M. Kuhlman. 1858. (In Annales des ponts et chaussées, ser.3, mémoires, v.16, p.206–220.)

The same. 1859. (In Le Moniteur scientifique, v.2, p.89–95.)

There are some slight changes in this reprint.

The same, translated. 1859. (In Journal of the Society of Arts, v.7, p.584–587.)

The same, translated. 1859. (In Verhandlungen des Vereins zur Beförderung des Gewerbefleisses in Preussen, v.38, p.89–96.)

This has a few historical remarks as an introduction.

The same, condensed translation. 1859. (In Chemisches central-blatt, v.30, n. s. v.4, pt,2, p.728–734.)

The latter two translations are from "Moniteur universel," 1858, no.353.
Includes other applications of water-glass.

Kröger, M.

Darstellung von kieselsäure- und wolframhydroxydsolen mit hilfe der Hildebrandzelle. 1922. (In Kolloid-zeitschrift, v.30, p.16–18.)

The same, abstract translation. 1922. (In Chemical abstracts, v.16, p.1525.)

The same, abstract translation. 1922. (In Journal of the Chemical Society, v.122, pt.2, p.212–213.)

Electrolyses a solution of sodium silicate.

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Kröger, M.

Einfluss der wolframsäure auf die gelatinierung der kieselsäure in stark salzsauerer lösung. 1922. (In Kolloid-zeitschrift, v.30, p.18–19.)

The same, abstract translation. 1922. (In Journal of the Chemical Society, v.122, pt.2, p.213.)

Uses a solution of sodium silicate containing 33.7 per cent silica.

Kuhlmann, F.

Études théoriques et pratiques sur les impressions, les apprêts et la peinture. 1857. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.44, p.539–548.)

The same, abstract translation. 1857. (In Polytechnisches journal, v.145, p.60–66.)

From "Polytech. centralblatt," 1857, p.725.
Includes use of water-glass for fixing colors in cloth printing and painting.

Kuhlmann, F.

Mémoire sur les chaux hydrauliques, les pierres artificielles et sur diverses nouvelles applications des silicates alcalins solubles. 1855. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.40, p.1335–1340; v.41, p.162–166, 289–293.)

See also correspondence, v.41, p.607, 688, 842, 1091.

The same, condensed translation. 1855. (In Chemical gazette, v.13, p.298–300, 378–380, 398–400.)

The same, condensed translation. 1855. (In Pharmaceutical journal and transactions, v.15, p.80–82.)

The same, condensed translation. 1855. (In Polytechnisches journal, v.137, p.288–292, 358–363, 436–439.)

Kuhlmann, F. *See also* Kolb and others.

La Coux, H. de.

L'eau dans l'industrie. 496 p. 1900. Dunod, Paris.

"Silicates alcalins," p.69, deals with the use of water-glass as a scale preventive.

La Coux, H. de.

Industrial uses of water; translated by Arthur Morris. 354 p. 1903. Scott, Greenwood.

"Alkaline silicates," p.49.

Legg, A. T.

Preparation of silica jelly for use as a bacteriological medium. 1919. (In Chemical abstracts, v.13, pt.3, p.2895.)

The same. 1919. (In Journal of the Society of Chemical Industry, v.38, pt.2, p.762A–763A.)

Both of the above are abstracts from "Biochemical journal," v.13, p.107–110, giving instructions for the preparation of silica jelly and factors upon which success depends, and including proper treatment of sodium silicate.

Lehner, Sigmund.

Die imitationen; eine anleitung zur nachahmung von natur- und kunstproducten. Ed.2, enlarged. 247 p. 1893. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.101.)

Includes discussion of various industrial applications of water-glass.

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[Maisch, John M.]

On the use of soluble glass. 1858. (In American journal of pharmacy, v.30, ser.3, v.6, p.566–568.)

From "Druggists' circular."

Marquart, L. C.

Anleitung zur anwendung des wasserglases. 1856. (In Polytechnisches journal, v.140, p.441–451.)

The same. 1856. (In Chemisches central-blatt, v.27, n. s. v.1, p.690–698.)

Concerned with some of the commercial applications of water-glass. There are slight changes in the reprint.

Megraw, Herbert A.

Flotation process. Ed.2, revised and enlarged. 359 p. 1918. McGraw.

Mentions very briefly the use of sodium silicate in conjunction with the hydroxide, as developed by A. A. Lockwood, in treating mixtures of galena and sphalerite.

Michler, Josef R.

Raffinirung der mineralöle mit wasserglas. 1897. (In Chemikerzeitung, v.21, pt.2, p.853–854.)

See also correspondence on p.898, 899, 922, 966.

The same, abstract. 1897. (In Chemisches central-blatt, v.68, ser.5, v.1, pt.2, p.1040.)

The same, translated. 1898. (In Engineering and mining journal, v.66, p.338.)

The same, abstract translation. 1897. (In Journal of the Society of Chemical Industry, v.16, p.1009.)

See also v.17, p.1035.

Brief article on the use of water-glass as a neutralizing agent in the refining of petroleum.

Mitchell, Charles Ainsworth, & **Hepworth,** T. C.

Inks; their composition and manufacture, including methods of examination and a full list of English patents. Ed.2, revised. 266 p. 1916. C. Griffin.

"Baudrimont's soluble glass ink," p.221. From Desmarest's "Les encres et cirages," p.144.

Neuere anwendungen des wasserglases in der industrie. 1874. (In Neueste erfindungen und erfahrungen, v.1, p.71.)

Use in cements and for several other purposes.

Schürhoff.

Natriumsilicat als einbettungsmittel für mikroskopische dauerpräparate. 1902. (In Chemisches central-blatt, v.73, ser.5, v.6, pt.1, p.540–541.)

The same. 1902. (In Chemisches repertorium, v.26, pt.1, p.551.)

Both are very brief abstracts from "Centralblatt für bakteriologie und parasitenkunde," pt.2, v.8, p.80–82.

Silicate of soda (water-glass) in refining petroleum. 1899. (In Journal of the Franklin Institute, v.148, p.399.)

Brief note from "Drugs, oils and paints."

Use as a neutralizing agent after treatment with sulphuric acid.

[Sodium silicate.] 10 p. 1910–11.

Pamphlet consisting of photostat prints of articles published in "Glue," v.1, dealing with the use of water-glass as an adhesive and as a sizing material.

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Soluble glass. 1858. (In Proceedings of the American Pharmaceutical Association, v.7, p.51.)

Gives a list of its uses.

Ueber eine neue anwendung des Fuchs'schen wasserglases zum festmachen von organischen ueberresten. 1848. (In Polytechnisches journal, v.108, p.78.)

From "Böttger's polytechn. notizblatt," 1848, no.2. Use of water-glass to prevent crumbling of bones, shells, etc.

[Verwendung des wasserglases bei spinnereimaschinen.] 1869. (In Zeitschrift des Oesterreichischen Ingenieur- und Architekten-Vereins, v.21, p.277.)

The same. 1870. (In Polytechnisches journal, v.195, ser.4, v.45, p.374.)

Used for giving smoothness and pliability to the leather.

Voelcker, John A.

[Influence of manganese and iron sulphates and of potassium and sodium silicates on wheat and barley.] 1906. (In Journal of the Chemical Society, v.90, pt.2, p.888.)

The same. 1906. (In Experiment station record, v.18, p.28.)

Both of the above are abstracts from "Journal of the Royal Agricultural Society of England," v.66, p.206–211.

Wagner.

Ueber wasserglas als ersatzmittel des borax. 1857. (In Polytechnisches journal, v.145, p.238.)

From "Würzburger gemeinnützige wochenschrift," 1857, no.25.

A very short note on the substitution of water-glass for borax for many purposes in which the latter is used.

Whitney, David D.

Transformation of Brachionus pala into Brachionus amphiceros by sodium silicate. 1916. (In Biological bulletin, v.31, p.113–120.)

The same, abstract. 1916. (In Chemical abstracts, v.10, pt.3, p.3109.)

Describes experiments on the successful use of water-glass for the above purpose.

Wright, Clarence A. *and others.*

Flotation tests of Idaho ores. 1921. (In United States—Mines bureau. Bulletin no.205. 70 p.)

Gives the results of flotation tests on lead-zinc ores, in which water-glass was one of the agents used, p.15, 16, 23, 29, 30, 36–38.

Agglutinants

General and Miscellaneous

Björling, Philip R.

Briquettes and patent fuel; their manufacture and machinery connected therewith. 254 p. 1903. Rebman.

Gives proportions of mixtures containing sodium silicate, which have been proposed as bonds for briquets, p.214–220. There are several other formulas scattered through the volume.

H., J. G.

Silicate of soda as an adhesive. 1918. (In Furniture manufacturer and artisan, v.76, n. s. v.15, p.268–269.)

Concerned primarily with its use in the woodworking field.

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Jünemann, Friedrich.

Die briquette-industrie und die brennmaterialien. 400 p. 1881. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.80.)

Use of water-glass as a binding material for briquets, p.54.

Malcolmson, J. D.

Colloidal method for increasing the volume of adhesive water-glass. 1920. (In Journal of industrial and engineering chemistry, v.12, p.174–176.)

The same, abstract. 1920. (In Chemical abstracts, v.14, pt.2, p.2238.)

The same, abstract. 1920. (In Journal of the American Ceramic Society, v.3, p.337–338.)

A solution of water-glass is diluted with brine.

Mills, James E.

Binders for coal briquets; investigations made at the fuel-testing plant, St. Louis, Mo. 1908. (In United States—Geological survey. Bulletin no.343. 56 p.)

The same. 1911. (In United States—Mines bureau. Bulletin no.24. 56 p.)

"Water-glass," p.29, 51.
Results are rather unsatisfactory.

Ray, Arthur B.

Incendiaries in modern warfare. 1921. (In Journal of industrial and engineering chemistry, v.13, p.641–646, 714–722.)

Discusses the use of sodium silicate as a binder for thermite mixtures, p.642.

Rösler.

Anwendung des wasserglases beim oculiren der bäume. 1860. (In Polytechnisches journal, v.156, p.400.)

The same, translated. 1861. (In Bulletin de la Société d'Encouragement pour l'Industrie Nationale, v.60, ser.2, v.8, p.250.)

From "Württembergisches gewerbeblatt," 1860, no.22.

Schaal, Eugen.

Infusorienerde mit wasserglas zum beschlagen von retorten für hohe temperaturen. 1883. (In Chemisches central-blatt, v.54, ser.3, v.15, p.349–350.)

The same, abstract. 1884. (In Zeitschrift für analytische chemie, v.23, p.58.)

Abstract from "Deutsche ind.-ztg.," 1883, p.147.

Searle, Alfred Broadhead.

Refractory materials; their manufacture and uses. 444 p. 1917. C. Griffin.

Use of water-glass as a bond for refractories, p.219–220.

Standage, H. C.

Agglutinants of all kinds for all purposes. 267 p. 1907. Constable.

Includes considerable on the preparation of water-glass and on its use as an agglutinant.

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Vail, James G.

Uses of water glass. 1919. (In Chemical engineer, v.27, p.280.)

The same. 1919. (In Chemical and metallurgical engineering, v.21, p.293.)

This has the title: "Some properties of commercial silicate of soda." Describes its use as an adhesive, especially in the paper box industry.

Zellner, Julius.

Die künstlichen kohlen für elektrotechnische und elektrochemische zwecke; ihre herstellung und prüfung. 295 p. 1903. Springer, Berlin.

Discusses briefly the use of water-glass, as developed by Siemens Brothers, as a bond for the cores of lamp carbons, p.80–81. For other references see index.

Abrasives

Guest, James J.

Grinding machinery. 444 p. 1915. E. Arnold.

"Silicate wheels," p.28, 45.

Hamilton, Douglas Thomas, & **Jones,** F. D.

Advanced grinding practice; a treatise on precision grinding methods and the equipment used in modern grinding practice. 344 p. 1915. Industrial Press. (In Machinery's mechanical library, v.4.)

"Silicate bonding process," p.226–227.

Describes briefly the manufacture of silicate grinding wheels, their advantages and applications. This article is identical with that in "Machinery's encyclopedia."

Jacobs, Frederic Burnham.

Abrasives & abrasive wheels; their nature, manufacture and use; a practical handbook for engineers, factory superintendents, foundrymen, shop foremen and mechanics in general. 338 p. 1919. Henley.

"Silicate process," p.79–80.

Machinery's encyclopedia; a work of reference covering practical mathematics and mechanics, machine design, machine construction and operation, electrical, gas, hydraulic and steam power machinery, metallurgy and kindred subjects in the engineering field; compiled and edited by Erik Oberg and F. D. Jones [and others]. 7v. 1917. Industrial Press.

"Silicate bonding process" for making grinding wheels, v.4, p.473.

This article is identical with that in the book by Hamilton and Jones.

Richmond, H. A.

Advocates use of silicate wheels. 1921. (In Abrasive industry, v.2, p.108–109.)

Letter to the editor commenting on an editorial in v.2, p.70.

Silicate process wheels. 1921. (In Abrasive industry, v.2, p.70.)

Editorial on the advantages and the proper use of abrasive wheels bonded with sodium silicate.

Silicate wheels. 1921. (In Abrasive industry, v.2, p.211.)

Answer to an inquiry regarding the practicability of making wheels of silicon carbide, using the silicate process.

Taylor, J. Crow.

Liquid glass. 1918. (In Furniture manufacturer and artisan, v.76, n. s. v.15, p.271.)

Article in "Department of shop notes." Deals with use in making sand belts.

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Vail, James G.

Silicate of soda as a bonding medium. 1921. (In Abrasive industry, v.2, p.393–394.)

Use in the manufacture of abrasive wheels.

Wasserglas-schmirgelsteine. 1875. (In Dingler's polytechnisches journal, v.215, ser.5, v.15, p.379.)

The same. 1874. (In Neueste erfindungen und erfahrungen, v.1, p.537.)

From "Gewerbeblattes für Hessen," 1874, p.354.

The same, abstract translation. 1876. (In Journal of the Chemical Society, v.29, p.124.)

Brief article on an abrasive stone developed by Van Bearle & Co. of Worms, made from emery, water-glass, and petroleum. Does not describe the process of manufacture.

Cements

Bogue, Robert Herman.

Water resistant glues; casein and blood albumin. 1922. (In Chemical age (N. Y.), v.30, p.103–106.)

Gives several formulas for casein cements containing water-glass.

Bornträger, H.

Water-glass as an addition to cement. 1901. (In Journal of the Society of Chemical Industry, v.20, p.477–478.)

The same. 1901. (In Chemisches central-blatt, v.72, ser.5, v.5, pt.1, p.708.)

Both are abstracts from "Österreichische chemiker-zeitung," v.4, p.81–83. They give effects of the addition of water-glass to cement.

Cement for porcelain. 1920. (In Chemical abstracts, v.14, pt.3, p.3514.)

The same. 1921. (In English mechanic and world of science, v.113, p.215.)

The same. 1920. (In Journal of the American Ceramic Society, v.3, p.922.)

The same. 1921. (In Scientific American monthly, v.3, p.179.)

These are abstracts from "Keram. rundschau," v.28, p.318. (The third abstract gives p.218 as page reference.)

Gives formulas for cements, some of which contain water-glass.

Dawidowsky, F.

Glue, gelatine, animal charcoal, phosphorus, cements, pastes and mucilages; translated with extensive additions, including a description of the most recent processes, by William T. Brannt. Ed.2, revised. 282 p. 1905. Baird.

"Water-glass and water-glass cements," p.240–242.

Hiscox, Gardner Dexter, *ed.*

Henley's twentieth century book of recipes, formulas and processes, containing nearly ten thousand selected scientific, chemical, technical and household recipes, formulas and processes for use in the laboratory, the office, the workshop and in the home. New ed. 807 p. 1920. Henley.

"Water-glass cements," p.19.

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Hopkins, Albert Allis, *ed.*

Scientific American cyclopedia of formulas. 1077 p. 1915. Munn.
"Soluble glass cements," p.308.

Jonas, C. S.

Ein beitrag zur technischen anwendung des wasserglases. 1856. (In Polytechnisches journal, v.142, p.214–215.)
From "Polytechn. centralblatt," 1856, p.1282.
Discusses the use of a paste of fluor-spar, glass, and water-glass as a cementing material.

Kallauner, O.

Über den einfluss des calciumcarbonats auf die wasserglaslösung. 1909. (In Chemiker-zeitung, v.33, p.1174–1175.)

The same, abstract. 1910. (In Zeitschrift für angewandte chemie, v.23, pt.1, p.177.)

The same, abstract translation. 1910. (In Chemical abstracts, v.4, pt.1, p.551.)

The same, abstract translation. 1909. (In Journal of the Society of Chemical Industry, v.28, pt.2, p.1248.)
Study of cement formed by mixing calcium carbonate and water-glass.

Lehner, Sigmund.

Die kitte und klebemittel. Ed.4, revised and enlarged. 144 p. 1892. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.25.)
Water-glass and water-glass cements, chapter 10, p.70–74.

Rusoff, Samuel.

Experiences in mending kiln furniture. 1915. (In Transactions of the American Ceramic Society, v.17, p.290–293.)
Composition and use of a cementing mixture containing sodium silicate.

Soluble glass in the arts. 1873. (In Chemical news, v.27, p.259.)

The same. 1873. (In Journal of the Franklin Institute, v.95, ser.3, v.65, p.156.)
A very brief note on use in cementing materials.

Stähler, Arthur, *ed.*

Handbuch der arbeitsmethoden in der anorganischen chemie. 5v. v.1: Allgemeiner teil; das anorganisch-chemische laboratorium und seine ausstattung; mechanische operationen. 786 p. 1913. Veit, Leipsic.
"Wasserglaskitte," p.490.

Staley, Homer F.

Cements for spark-plug electrodes. 1920. (In United States—Standards bureau. Technologic paper no.155. 10 p.)

The same, condensed. 1919. (In United States—National advisory committee for aeronautics. Fifth annual report, p.109–111.)
This is pt.4 of report no.53.
All the cements studied contained sodium silicate.

Utzel, T.

Über säurefeste kitte und steine. 1921. (In Chemiker-zeitung, v.45, p.1069–1070.)

The same, abstract translation. 1922. (In Chemical abstracts, v.16, p.998.)
Deals with the hardening of water-glass cements used in the chemical industry.

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Wasserglas-kitt für die haushaltung, küche u. dgl. 1885. (In Neueste erfindungen und erfahrungen, v.12, p.231.)

Water-glass cements. 1910. (In Scientific American supplement, v.69, p.187.)

Gives formulas for cements for glass, gas-, steam- and water-pipes, porcelain, stone, iron, and wooden water-tanks and windows.

Detergents

Andés, Louis Edgar.

Praktische erfahrungen in der herstellung von waschkompositionen mittels wasserglas. 1903. (In Neueste erfindungen und erfahrungen, v.30, p.100–102.)

Brief article on the utilization of water-glass in soaps and washing compositions.

Andés, Louis Edgar.

Praktisches rezeptbuch für die gesamte fett-, öl-, seifen- und schmiermittel-industrie. 425 p. 1904. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.272.)

Gives information on the manufacture of water-glass, water-glass soaps, and detergent compositions, p.384–388, also p.43–44, 48, 175.

Andés, Louis Edgar.

Wasch-, bleich-, blau, stärke- und glanzmittel. 344 p. 1909. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.320)

Treats rather fully on p.56–88, the preparation, dissolving, properties, and some applications of water-glass, water-glass soaps, and water-glass detergent compositions, and on p.186–190, the use of water-glass in bleaching yarns and fabrics.

Anwendung des wasserglases zum waschen von maschinenputzbaumwolle. 1875. (In Neueste erfindungen und erfahrungen, v.2, p.69.)

Note on the use of water-glass for washing cotton waste.

Artus, Willibald.

Grundzüge der chemie in ihrer anwendung auf das praktische leben. 520 p. 1880. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.64.)

"Wasserglasseife," p.274–277.

[Bach, Karl.]

Herstellung von wasserglascomposition. 1902. (In Neueste erfindungen und erfahrungen, v.29, p.81.)

Abstract from "Seifensieder-zeitung." Deals with manufacture of water-glass soaps.

Baerle & Co.

Washing sheep, wool, &c., with soluble glass. 1872. (In Journal of the Society of Arts, v.20, p.840.)

Brannt, William T.

Practical treatise on the manufacture of soap and candles; edited chiefly from the German of C. Deite [and others], with additions by W. T. Brannt. 677 p. 1888. Baird.

"Soluble glass or water glass," p.218–219.
Use of water-glass as a filling material for soap, p.382–385, 408–409.
See also p.421–422.

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Cameron, James, *ed.*

Soaps and candles. Ed.2. 306 p. 1896. Churchill.

Gives processes of manufacture of sodium and potassium silicates, p.27–31, and of silicated soaps, p.111–115.

Carpenter, William Lant.

Treatise on the manufacture of soap and candles, lubricants and glycerin. Ed.2, revised and enlarged by Henry Leask. 446 p. 1895. E. & F. N. Spon.

"Potassium and sodium silicates," p.143–145.
"Silicated soaps," p.198–200.

Deite, Carl.

Handbuch der seifenfabrikation; völlig umgearbeitet und neu herausgegeben von Walther Schrauth. Ed.5. 734 p. 1921. Springer, Berlin.

Contains scattered information on the use of water-glass in soaps, part of which is indicated in the index under "wasserglas."

Droux, M. S.

Use of sodic silicate in soap making. 1874. (In American chemist, v.4, p.438.)

Short abstract from "Annales du génie civil," 1874, no.1.

Engelhardt, Alwin.

Handbuch der praktischen seifen-fabrikation. 2v. 1896. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.136–137.)

"Wasserglas," v.1, p.49–50.
"Wasserglasauflöseapparate," v.1, p.350–351.
"Wasserglasseife," v.2, p.185–187.

Engelhardt, Alwin.

Handbuch der praktischen toilletteseifen-fabrikation; praktische anleitung zur darstellung aller sorten von deutschen, englischen und französischen toiletteseifen, sowie der medicinischen seifen, glycerinseifen und der seifenspecialitäten. 448 p. 1888. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.163.)

"Wasserglas," p.109–110.

Friedländer, *and others.*

Bericht der abtheilung für manufakturen und handel über die brauchbarkeit des wasserglases zur wäsche statt der seife. 1858. (In Verhandlungen des Vereins zur Beförderung des Gewerbfleisses in Preussen, v.37, p.98–100.)

The same. 1858. (In Polytechnisches journal, v.149, p.372–376.)

The same, abstract translation. 1859. (In Répertoire de chimie appliquée, v.1, p.193–194.)

Report of experiments carried out by different persons and works on the usefulness of water-glass for washing fabrics.

Gadd, W. Lawrence.

Soap manufacture; a practical treatise on the fabrication of hard and soft soaps, and analytical methods for the determination of their chemical composition. 224 p. 1893. G. Bell. (Technological handbooks.)

Silicated soaps, p.106–112.

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Gathmann, Henry.

American soaps; a complete treatise on the manufacture of soap, with special reference to American conditions and practice. Ed.2, enlarged. 461 p. 1899. Privately printed.

"Silicate of soda," p.80–81. Also brief notice, p.227–228, 258–259.

Grothe, H.

Ueber die anwendung des wasserglases zur wollwäsche. 1875. (In Chemisches central-blatt, v.46, ser.3, v.6, p.830.)

Abstract from "Deutsche polyt. ztg." through "Muster-zeitung," v.24, p.340.

[Heumann.]

Das wasserglas und die neueren waschmittel. 1874. (In Neueste erfindungen und erfahrungen, v.1, p.309–312.)

From "Gewerbbl. f. d. Grssh. Hessen." Deals with the detergent properties of water-glass and its use in soaps, soap-powders, etc.

Hurst, George H.

Soaps; a practical manual of the manufacture of domestic, toilet and other soaps. 385 p. 1898. Scott, Greenwood.

"Sodium and potassium silicates," p.47–49.
"Silicated soaps," p.243–244.
"Silicated soft soaps," p.309–311.
For analysis see p.342–344, 359–360.

International Correspondence Schools, Scranton, Pa.

[Chemical technology.] 3v. 1902. (International library of technology, v.18–20.)

"Sodium silicate," v.2, sec.44, p.3–5, discusses its use as a filling material in the manufacture of soap.

Kingzett, Charles Thomas.

History, products and processes of the alkali trade, including the most recent improvements. 247 p. 1877. Longmans.

"Silicated soaps," p.175–177.

Kühl, H.

Über die wirkung von wasserglas allein und in verbindung mit soda. 1919. (In Chemisches zentralblatt, v.90, ser.6, v.1, pt.1B, p.368.)

Brief note referring to an article in "Seifensieder-ztg.," v.45, p.459.

Muspratt, James Sheridan, *comp.*

Encyclopedia of chemistry; theoretical, practical and analytical as applied to the arts and manufactures. 2v. 1877–80. Lippincott.

Discusses the use of water-glass in soap manufacture, v.2, p.779–780.

New method of washing by soda water-glass. 1872. (In American chemist, v.2, p.357.)

Short abstract from "Reimann's faerberzeitung," 1872, no.3. Gives method used for the removal of wool grease.

Peter, Julius.

Marmorierte wasserglasseife à la Eschweger. 1913. (In Zeitschrift für angewandte chemie, v.26, pt.2, referatenteil, p.138.)

Abstract from "Seifensieder-zeitung," v.39, p.785–786.

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Rigler, Rud.

Ueber die mit wasserglas in der Wiener Waschanstalt erzielten resultate. 1859. (In Polytechnisches journal, v.151, p.79–80.)

From "Mittheilungen des Niederösterreichischen Gewerbevereins," 1858, p.474. Results of experiments on the use of water-glass for washing clothes.

Schellhass, W. O.

Silicate of soda soap. 1873. (In Proceedings of the American Pharmaceutical Association, v.21, p.181–182.)

Abstract from "N. rep. f. pharm.," 1872, through "Pharm. centralhalle," 1873, no.2. Gives analysis of a water-glass composition.

Schmidt, R.

Wasserglasseifen. 1913. (In Zeitschrift für angewandte chemie, v.26, pt.2, referatenteil, p.311.)

Abstract from "Seifensieder-zeitung," v.39, p.1391–1392. The original article gives formulas.

Schnitzer, Guido.

Die anwendung von natronwasserglas in der seifenfabrication. 1872. (In Polytechnisches journal, v.203, ser.5, v.3, p.129–132.)

The same, abstract. 1872. (In Chemisches central-blatt, v.43, ser.3, v.3, p.236.)

The same, translated. 1872. (In Le Moniteur scientifique, v.14, ser.3, v.2, p.350–352.)

The same, abstract translation. 1872. (In Bulletin de la Société Chimique de Paris, v.22, n. s. v.17, p.329–330.)

The same, abstract translation. 1872. (In Journal of the Chemical Society, v.25, n. s. v.10, p.340.)

Contains valuable experimental data and practical information on the use of water-glass in soap manufacture.

Simmons, William H.

Soap; its composition, manufacture and properties. 124 p. [1917.] Pitman. (Pitman's common commodities of commerce.)

"Sodium silicate," p.25–26.
Silicated soaps, p.66.

Soap with silicate of sodium. 1883. (In Proceedings of the American Pharmaceutical Association, v.31, p.68.)

Abstract from "New rem.," Jan. 1883, p.25. The original describes the processes that may be employed.

St., D.

Seifenpulver mit wasserglas. 1905. (In Chemisches repertorium, v.29, pt.2, p.400.)

Brief abstract from "Seifensiederzeitung," v.32, p.814.

Stiepel, C.

Verfahren zur herstellung kieselsäurehaltiger seifen. 1904. (In Chemisches central-blatt, v.75, ser.5, v.8, pt.1, p.1112.)

The same. 1904. (In Zeitschrift für angewandte chemie, v.17, pt.2, p.1462.)

Both are abstracts from "Seifenfabrikant," v.24, p.225–227. Investigation of the saponification of fatty acids by means of water-glass.

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Storer, F.

On the substitution of soluble glass for the resinous soap used in the manufacture of ordinary soap. 1863. (In Chemical news, v.8, p.17.)

The same, translated. 1863. (In Répertoire de chimie appliquée, v.5, p.5–7.)

The same, abstract translation. 1863. (In Polytechnisches journal, v.168, ser.4, v.18, p.463–464.)

From "Polytechnisches centralblatt," 1863, p.623.

The same, abstract translation. 1864. (In Zeitschrift des Vereines Deutscher Ingenieure, v.8, col.688–689.)

From "Schweiz. polytechn. zeitschr.," 1863, p.151.

Ubbelohde, Leo, *ed.*

Handbuch der chemie und technologie der öle und fette; chemie, analyse, gewinnung und verarbeitung der öle, fette, wachse und harze. v.1–3. 1908–20. Hirzel, Leipsic.

"Das wasserglas," v.3, pt.2, 1911, p.592–596.

There are a number of other references on water-glass, particularly as a soap filler, scattered through the volume, for which see index.

Über wasserglas- und bleichseifen nebst kalkulation. 1908. (In Zeitschrift für angewandte chemie, v.21, pt.1, p.1025.)

Abstract from "Seifenfabrikant," v.27, p.603, 607.

Vail, James G.

Silicate of soda; its function in the cleansing process; expansion of its use as a detergent. 1922. (In Chemical age (N. Y.), v.30, p.19–20.)

Wasserglas als füllungsmittel für seifen. 1885. (In Chemisches centralblatt, v.56, ser.3, v.16, p.956–957.)

Abstract from "Seifenfabrikant," 1885, no.15.

Wasserglasseife. 1865. (In Polytechnisches journal, v.178, p.416.)

The same. 1866. (In Chemisches central-blatt, v.37, n. s. v.11, pt.1, p.559–560.)

Brief note on Artus's method of manufacture of water-glass soap.

Wiltner, Friedrich.

Die fabrikation der toiletteseifen und der seifenspezialitäten. Ed.3, revised and enlarged. 440 p. 1920. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.114.)

Considers water-glass as a filling material for soaps, p.179–180.

Wright, Charles Romley Alder.

Animal and vegetable fixed oils, fats, butters and waxes; their preparation and properties, and the manufacture therefrom of candles, soaps and other products. Ed.3, revised and enlarged by C. Ainsworth Mitchell. 939 p. 1921. C. Griffin.

"Silicated soaps," p.834–835.

There are a few brief references to the use of sodium silicate in the oil industries in other parts of the volume.

Zur verfälschung der seife. 1876. (In Dingler's polytechnisches journal, v.222, ser.5, v.22, p.501.)

Abstract from "Neue seifensiederzeitung," 1876, p.168. Includes the use of water-glass as a filling material.

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Analysis

Braun, K.

Zur quantitativen bestimmung von natronwasserglas in der seife bezw. in seifenpulvern. 1907. (In Chemisches repertorium, v.31, p.355.)

The same. 1908. (In Zeitschrift für angewandte chemie, v.21, pt.1, p.1028–1029.)

Both are abstracts from "Seifenfabrikant," v.27, p.554.

Deite, Carl.

Manual of toilet soap-making; translated from the German by H. J. Keane. Ed.2, revised. 353 p. 1920. Scott, Greenwood.

Gives methods for the estimation of water-glass, p.326–327.

Estimation of silicates in soap. 1894. (In Proceedings of the American Pharmaceutical Association, v.42, p.608–609.)

Abstract from "Seifenfabr." through "West. drug.," 1894, p.364.

Hussein, Ahmed.

Detection of sodium silicate in soap. 1905. (In Pharmaceutical journal, v.74, ser.4, v.20, p.821.)

The same. 1905. (In Chemisches central-blatt, v.76, ser.5, v.9, pt.2, p.81.)

The same. 1905. (In Chemisches repertorium, v.29, pt.1, p.185.)

The same. 1905. (In Proceedings of the American Pharmaceutical Association, v.53, p.585.)

All are abstracts from "Journal de pharmacie et de chimie," ser.6, v.21, p.496–497.

Isnard, E.

Determination of soluble silicates in soaps, and action of sodium chloride on soluble silicates. 1914. (In Chemical abstracts, v.8, pt.2, p.2077.)

Abstract from "Ann. chim. anal.," v.19, p.98–100.

Leitch, Harold W.

New qualitative test for silicates in soap. 1914. (In Journal of industrial and engineering chemistry, v.6, p.811–812.)

The same, abstract. 1914. (In Chemical abstracts, v.8, p.3724.)

The same, abstract. 1914. (In Journal of the Society of Chemical Industry, v.33, p.1062.)

The same, abstract. 1914. (In Year book of the American Pharmaceutical Association, v.3, p.85.)

Its principle is the insolubility of aluminum silicate in acetone and water.

Specifications for and methods of testing soaps. 1919. (In United States—Standards bureau. Circular no.62. Ed.2. 32 p.)

The specifications include the permissible limits of sodium silicate and a method of analysis is briefly outlined on p.28.

Waltke (W.) **& Co. St. Louis.**

Ueber die bestimmung von kohlensaurem, kieselsaurem und borsaurem natrium in seifen. 1896. (In Chemiker-zeitung, v.20, pt.1, p.20–21.)

The same, abstract. 1896. (In Chemisches central-blatt, v.67, ser.4, v.8, pt.1, p.460.)

The same, abstract translation. 1897. (In Journal of the Chemical Society, v.72, pt.2, p.159–160.)

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Egg Preservation

Alder, Byron.

Preserving eggs for the home. 1917. (In Utah—Agricultural experiment station, Logan. Circular no.25. 8 p.)

Discusses several methods, including "Method for using water glass," p.6.

Arnoux, André.

Sur la protection mécanique et la conservation des œufs. 1916. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.163, p.721–722.)

See also v.164, p.156.

Describes successful use of water-glass for the preservation of eggs.

Bartlett, J. M.

Eggs preserved with silicate of soda. 1912. (In International Congress of Applied Chemistry (Eighth)—Original communications, v.18, p.51–56.)

The same, abstract. 1912. (In Chemical abstracts, v.6, pt.3, p.3292.)

The same, abstract. 1913. (In Experiment station record, v.28, p.359.)

The same, abstract translation. 1912. (In Chemiker-zeitung, v.36, p.1311.)

Bell, G. Arthur.

Poultry management. 1907. (In United States—Agriculture department. Farmers' bulletin no.287. 48 p.)

"Preserving eggs," p.41–42, has a paragraph on use of water-glass.

Benjamin, Earl W.

Preservation of eggs. 1912. (In Cornell reading-courses for the farm home, v.1, p.298–300.)

Forms a section of "Preservation of food in the home," pt.3. Food series, no.6. Has a paragraph, p.300, on preserving in water-glass solution.

Berger, Richard.

Kolloide als konservierungsmittel. 1910. (In Zeitschrift für chemie und industrie der kolloide, v.6, p.172–174.)

The same, abstract. 1910. (In Chemisch-technisches repertorium, v.34, p.245.)

The same, abstract. 1910. (In Zeitschrift für angewandte chemie, v.23, pt.1, p.852.)

The same, abstract translation. 1910. (In Chemical abstracts, v.4, pt.1, p.1775.)

Includes action of water-glass as a preservative for eggs.

Berger, Richard.

Preservation of eggs. 1911. (In Journal of industrial and engineering chemistry, v.3, p.493–495.)

The same, abstract. 1911. (In Experiment station record, v.25, p.678.)

The same, abstract translation. 1911. (In Chemisch-technisches repertorium, v.35, p.510.)

Gives full directions for preserving eggs in sodium silicate and discusses the principles involved.

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Bornträger, H.

Über das konservieren von frischen eiern. 1900. (In Chemisches central-blatt, v.71, ser.5, v.4, pt.2, p.277.)

Brief abstract from "Österr. chemiker-zeitung," v.3, p.295. Discusses use of water-glass.

Brown, E.

Preservation of eggs. 1903. (In Experiment station record, v.15, p.72.)

Abstract from "Jour. Bd. Agr. [London]," v.9, no.4, p.494–497. Includes suggestions on the use of water-glass solutions.

Dunbar, Ruth.

Eggs in water glass beat the middleman. 1920. (In Country gentleman, v.85, pt.2, July 31, 1920, p.46–47.)

Dvorachek, H. E. & **Stout,** S. R.

Preserving eggs for winter use. 1918. (In Experiment station record, v.39, p.781.)

Abstract from Arkansas University Agricultural Experiment Station bulletin no.152, p.3–12. Includes preserving in water-glass.

Eggs for preserving use must be beyond suspicion. 1918. (In United States—Agriculture department. Weekly news letter, v.6, no.2, p.4.)

Recommends immersion in ten per cent solution of water-glass.

Evéquoz, A. & **Häussler,** E. P.

Wasserglas und konservierung der eier. 1913. (In Zeitschrift für untersuchung der nahrungs- und genussmittel, v.37, n. s. v.25, p.96–97.)

The same, abstract. 1913. (In Zeitschrift für angewandte chemie, v.26, pt.2, referatenteil, p.157.)

The same, abstract translation. 1913. (In Chemical abstracts, v.7, pt.1, p.1389.)

Gives proper composition of water-glass for its successful use in the preservation of eggs.

Experiment station work, XI. 1899. (In United States—Agriculture department. Farmers' bulletin no.103. 32 p.)

"Preserving eggs in water-glass," p.17–18.

Flohr, Lewis B.

Shipping eggs by parcel post. 1914. (In United States—Agriculture department. Farmers' bulletin no.594. 20 p.)

"Preserving eggs in water glass," p.4.

The same, revised. 1917. (In United States—Agriculture department. Farmers' bulletin no.830. 23 p.)

"Preserving eggs in water glass," p.5–6.

Guenther, Richard.

Preservation of eggs. 1903. (In United States—Statistics bureau. Department of commerce and labor. Consular reports, no.276, v.73, p.66–67.)

Brief report on the use, in Germany, of a ten per cent solution of water-glass for preserving eggs.

Hasterlik, Alfred.

Wasserglas als eierkonservierungsmittel. 1918. (In Zeitschrift für untersuchung der nahrungs- und genussmittel, v.48, n. s. v.36, p.170.)

Abstract from "Pharm. zentralh.," v.58, p.265–266.

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Heiduschka, A.

Wasserglas zur haltbarmachung von eiern. 1917. (In Chemisches zentralblatt, v.88, ser.5, v.21, pt.2A, p.116–117.)

Abstract from "Pharmazeutische zeitung," v.62, p.328.

Hendrick, James.

Preservation of eggs. 1907. (In Chemical abstracts, v.1, pt.1, p.751.)

The same. 1907. (In Experiment station record, v.18, p.1149–1150.)

The same. 1907. (In United States — Agriculture department. Farmers' bulletin no.296, p.29–31.)

Abstracts of varying length from "Jour. agr. sci.," v.2, p.100. Deals with the efficacy of water-glass as a preservative for eggs.

Jeffrey, J. S.

Egg preservation. 1905. (In Experiment station record, v.17, p.392–393.)

Abstract from North Carolina—Agricultural experiment station. Bulletin no.191, p.11–17.

Results indicate that a ten per cent solution of water-glass gives better results than a twenty per cent solution.

Jones, Hilton Ira, & **DuBois,** Robert.

Preservation of eggs, including a bibliography of the subject. 1920. (In Journal of industrial and engineering chemistry, v.12, p.751–757.)

Water-glass is one of the agents that were studied. The bibliography contains a number of references to the use of water-glass.

Lamson, G. H. *jr.*

Infection and preservation of eggs. 1909. (In Connecticut—Storrs agricultural experiment station. Bulletin no.55, p.203–214.)

"Use of water-glass," p.212–214.

The same, abstract. 1909. (In United States—Agriculture department. Farmers' bulletin no.353, p.14–15.)

Lamson, G. H. *jr.*

Water glass a preservative for eggs. 1911. (In Connecticut—Storrs agricultural experiment station. Bulletin no.67, p.267–274.)

Based in part on the author's earlier bulletin. See preceding reference.

Langworthy, C. F.

Eggs and their uses as food. 1906. (In United States—Agriculture department. Farmers' bulletin no.128, revised. 40 p.)

Considers preservation of eggs in water-glass, p.34–35.

Love, Fanny.

Home storage of eggs. 1919. (In National stockman and farmer, v.43, p.532.)

Best results with ten per cent solution of water-glass.

Nowotuy, E.

Anwendung des wasserglases zum conserviren der eier. 1857. (In Polytechnisches journal, v.143, p.238.)

Very brief note on preservation of eggs by means of water-glass.

Olson, G. A.

Two methods of preserving eggs. 1918. (In Washington (state)—Agricultural experiment station, Pullman. Popular bulletin no.114. [4 p.])

"Water-glass method of preserving eggs," pt.1, [p.1–3].

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Prall, F.

Über eier-konservierung. 1907. (In Zeitschrift für untersuchung der nahrungs- und genussmittel, v.26, n. s. v.14, p.445–481.)

Considers use of water-glass, p.468, 478–481, etc.

Preserve eggs now for use when their cost goes high. 1919. (In United States — Agriculture department. Weekly news letter, v.6, no.46, p.9.)

The same. 1919. (In Missouri—Agriculture, State board of. Monthly bulletin, v.17, no.4, p.33–34.)

Recommends storage in ten per cent solution of water-glass.

Preserving eggs; boys' and girls' poultry club work. (In United States —Agriculture department. Department circular no.15. 8 p.)

"Preserving in water glass," p.3.

Slocum, Rob R.

Back-yard poultry keeping. 1917. (In United States—Agriculture department. Farmers' bulletin no.889. 22 p.)

"Preserving eggs," p.21–22, deals briefly with use of water-glass.

Sodium silicate as an egg preservative. 1915. (In Experiment station record, v.32, p.870.)

Abstract from Minnesota University Agricultural Experiment Station report, 1914, p.26–27.

Some poultry experiments. 1908. (In Pennsylvania—Agricultural experiment station, State College. Bulletin no.87. 48 p.)

Gives directions for preparing a solution of water-glass for use as an egg preservative, p.48.

Strauch.

Ueber die conservirung der eier. 1897. (In Vierteljahresschrift über die fortschritte auf dem gebiete der chemie der nahrungs- und genussmittel, v.12, p.351.)

Abstract from "Ztschr. öff. chem.," v.3, p.301. Includes experiments on the efficacy of water-glass as a preservative for eggs.

Thatcher, R. W.

Preserving eggs. 1905. (Washington (state)—Agricultural experiment station, Pullman. Bulletin no.71. 14 p.)

Includes results of experiments on the usefulness of water-glass as an egg preservative, and gives "Directions for packing eggs in water glass solution," p.13–14.

The same, abstract. (In United States—Agriculture department. Farmers' bulletin no.273, p.17–18.)

Thieriot, J. H.

Preservation of eggs. 1897. (In United States—Statistics bureau. Department of commerce and labor. Consular reports, no.207, v.55, p.563–564.)

The same. 1898. (In Journal of the Society of Arts, v.46, p.370–371.)

The same, condensed. 1898. (In Journal of the Society of Chemical Industry, v.17, p.261–262.)

Use of water-glass recommended as the best of twenty methods tested. Includes records of spoilage.

Timely hints for farmers. 1909. (In Arizona—Agricultural experiment station, Tucson. Bulletin no.60, p.398–464.)

"Preserving eggs," p.431–433, by A. E. Vinson includes "Water glass methods," p.433.

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Vanderleck, J.

Preservation of eggs in the home. 1911. (In American food journal, v.6, no.11, p.13–14.)

Includes directions for preserving in water-glass.

Verwendung von wasserglas zur konservierung von eiern. 1917–18. (In Chemiker-zeitung, v.41, p.440, 477, 691–692, 848; v.42, p.195.)

Series of communications regarding objections to the use of water-glass made from sulphate for preserving eggs.

Vosseler, J.

Preservation of eggs in the tropics. 1909. (In Chemical abstracts, v.3, pt.2, p.1780.)

The same. 1908. (In Chemisches zentralblatt, v.79, ser.5, v.12, pt.2B, p.1214.)

Both are abstracts from "Der pflanzer," v.4, p.129–136. Include successful use of water-glass.

Wing, Annie L.

Some experiments in preserving eggs in waterglass. 1915. (In Journal of home economics, v.7, p.257.)

Comment by the editor at the end of the article.

Note calling attention to the successful use of a four per cent and a five per cent solution.

Glass and Ceramics

Acheson, Edward G.

Egyptianized clay. 1904. (In Transactions of the American Ceramic Society, v.6, p.31–46.)

Discussion, p.47–64.

Several participants in the discussion refer to the use of sodium silicate in clay slips.

Ashley, H. E.

Technical control of the colloidal matter of clays. 1911. (In United States—Standards bureau. Technologic paper no.23. 118 p.)

"Effect of additions of sodium carbonate and sodium silicate to clays," p.76.

Use of sodium silicate and sodium carbonate in the casting process, p.100–101.

The same, condensed and rearranged. 1910. (In Transactions of the American Ceramic Society, v.12, p.768–807.)

Back, Robert.

Effect of some electrolytes on clay. 1914. (In Transactions of the American Ceramic Society, v.16, p.515–544.)

Discussion, p.544–546.

Includes experiments with sodium silicate, these being reported on p.523–524, 536–540.

Berge.

Wasserglasglasuren. 1916. (In Sprechsaal, v.49, p.2–3, 9–10, 17–18.)

The same, abstract translation. 1917. (In Chemical abstracts, v.11, pt.3, p.3400.)

The same, abstract translation. 1916. (In Journal of the Society of Chemical Industry, v.35, pt.2, p.927.)

The same, abstract translation. 1917. (In Journal of the Society of Glass Technology, v.1, abstracts and reviews, p.25–26.)

Comprehensive article on water-glass glazes.

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Binders for ceramic colors. 1920. (In Chemical abstracts, v.14, pt.2, p.2845.)

The same. 1920. (In Journal of the American Ceramic Society, v.3, p.765.)

Abstracts from "Keram. rundschau," v.28, p.239. Includes use of sodium silicate as a binder.

Bleininger, A. V.

Use of sodium salts in the purification of clays and in the casting process. 1915. (In United States — Standards bureau. Technologic paper no.51. 40 p.)

"Effect of various amounts of sodium carbonate and sodium silicate," p.23–30.

The same, abstract. 1916. (In Chemical abstracts, v.10, pt.1, p.673.)

The same, abstract. 1915. (In Journal of the Franklin Institute, v.180, p.225–227.)

The same, abstract. 1915. (In Journal of the Society of Chemical Industry, v.34, pt.2, p.906.)

Bleininger, A. V. & **Hornung,** M. R.

Notes on casting. 1915. (In Transactions of the American Ceramic Society, v.17, p.330–354.)

Discussion, p.354–355.

Deals with the effect of various amounts of sodium carbonate and sodium silicate on clays, p.336–344. This paper is condensed from the preceding reference.

The same, abstract. 1915. (In Chemical abstracts, v.10, pt.1, p.518.)

Bornträger, Hugo.

Über drei neue verfahren zum färben von glasuren auf ofenkacheln und geschirren sowie metallwaren. 1893. (In Chemisches centralblatt, v.64, ser.4, v.5, pt.1, p.371.)

Abstract from "Deutsche chemiker-ztg.," v.8, p.17–18. Includes use of water-glass for making enamel colors.

Bornträger, Hugo.

Ueber wasserglas-silicate. 1893. (In Chemisches repertorium, v.17, pt.2, p.223.)

Abstract from "Keramische rundschau," v.1, p.299. Use in preparing porcelain colors.

Dumas, Ernest.

Rapport sur la décoration du verre à froid, par les procédés de M. Lutz-Knechtle. 1882. (In Bulletin de la Société d'Encouragement pour l'Industrie Nationale, v.81, ser.3, v.9, p.174–175.)

Report of investigation of the use of alkaline silicates in decorating glass.

Howe, Raymond M.

Use of fire clay in laying fire clay brick. 1920. (In Clay-worker, v.73, p.136–138.)

The same, abstract. 1920. (In Journal of the American Ceramic Society, v.3, p.330–331.)

Study of the effect of various additions, among which was water-glass, on the fusibility of a cone thirty bond clay.

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Kirkpatrick, F. A. *and others.*

An attempt to fit enamels to plastic clay bodies. 1916. (In Transactions of the American Ceramic Society, v.18, p.139–164.)

Includes the use of sodium silicate mixed with hydrochloric acid or oxalic acid.

McDougal, Taine G.

Casting of clay wares. 1916. (In United States—Mines bureau. Technical paper no.126. 26 p.)

Considers briefly the use of sodium silicate in slips, p.12, 14–15.

Discussion. 1915. (In Transactions of the American Ceramic Society, v.17, p.691–696.)

Mellor, J. W.

Gelatinization of clay-casting slip. 1920. (In Journal of the American Ceramic Society, v.3, p.85.)

Abstract from "Pottery gazette," no.510, p.1338, giving causes and remedies of gelatinization when sodium silicate is used in casting slips.

[Merz, Sigmund.]

Anwendung des wasserglases zur glasfabrication. 1860. (In Polytechnisches journal, v.155, p.237.)

The same. 1860. (In Chemisches central-blatt, v.31, n. s. v.5, pt.1, p.235.)

From "Bayerisches kunst- und gewerbeblatt," 1860, p.4. Short note on the use of water-glass for making flint-glass and crown-glass.

New German refractory product. 1921. (In Chemical and metallurgical engineering, v.24, p.1070.)

The same. 1922. (In American Gas Association bulletin of abstracts, v.16, p.63.)

Note on method of converting ordinary brick into fire-brick by coating with a mixture of seventy-five per cent carborundum and twenty-five per cent sodium silicate.

Rohland, P.

Die wirkung von alkalisilikaten auf ton- und kaolinsuspensionen. 1914. (In Kolloid-zeitschrift, v.15, p.158–159.)

The same, abstract translation. 1915. (In Chemical abstracts, v.9, pt.1, p.852.)

The same, abstract translation. 1915. (In Journal of the Chemical Society, v.108, pt.2, p.241.)

The same, abstract translation. 1915. (In Journal of the Society of Chemical Industry, v.34, pt.1, p.661.)

Salvetat.

Rapport sur les procédés de vernissage des poteries communes présentés par M. Constantin. 1874. (In Bulletin de la Société d'Encouragement pour l'Industrie Nationale, v.73, ser.3, v.1, p.105–109.)

Utilization of water-glass for glazing coarse pottery.

Schory, V. S.

Effect of the method of preparation on the viscosity of a casting slip. 1920. (In Journal of the American Ceramic Society, v.3, p.286–295.)

The same, abstract. 1920. (In Chemical abstracts, v.14, pt.2, p.2402.)

Includes the effect of varying the relative time of adding sodium silicate.

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Schurecht, H. G.

Effect of electrolytes on some properties of clays. 1918. (In Journal of the American Ceramic Society, v.1, p.201–213.)

Discussion, p.214–216.

Includes curves showing the effect of sodium silicate.

This material will be found also in United States—Mines bureau. Technical paper no.281.

Schurecht, H. G.

Relation of salt to clay in the purification of clays. 1917. (In Transactions of the American Ceramic Society, v.19, p.460–478.)

Discusses the use of sodium silicate in the purification of Georgia kaolin, p.472–474. This material will be found also in the following reference.

Schurecht, H. G.

Use of electrolytes in the purification and preparation of clays. 1922. (In United States—Mines bureau. Technical paper no.281. 47 p.)

Considers, p.17, the effect of sodium silicate on the purification of Georgia kaolin. In other places presents curves showing the effect of sodium silicate on some of the properties of clays.

Springer, L.

Use of mixtures of sulfate and water glass as a substitute for alkalies in glass batches. 1920. (In Chemical abstracts, v.14, pt.3, p.3512.)

The same. 1921. (In Journal of the Society of Glass Technology, v.5, abstracts and reviews, p.53.)

Abstract from "Sprechsaal," v.53, p.21.

Sproat, Ira E.

Refining and utilization of Georgia kaolins. 1916. (In United States—Mines bureau. Bulletin no.128. 59 p.)

Mentions very briefly results obtained in using sodium silicate as a deflocculating agent, p.19, 20.

The same, condensed and rearranged. 1916. (In Transactions of the American Ceramic Society, v.18, p.767–811.)

Taylor, Alice B.

Casting of pots for use in experimental work on optical glass. 1920. (In Journal of the Society of Glass Technology, v.4, transactions, p.140–150.)

Discussion, p.150–153, 251–253, brings out several opinions regarding the efficacy of the presence of sodium silicate alone or in combination with sodium carbonate in casting slips.

What is the best substance to prevent clay slip from settling in the casting process? What is the effect of this substance on the body in firing? 1911. (In Transactions of the American Ceramic Society, v.13, p.641–645.)

Section of the "Question Box." Discussion regarding the use of sodium silicate in clay slip.

Wright, J. W. & **Fuller,** D. H.

Note on the casting of porcelain glass pots. 1919. (In Journal of the American Ceramic Society, v.2, p.659–663.)

Includes a discussion of the effects of the presence of sodium silicate and sodium carbonate.

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Medicine and Surgery

Bardwell, Eugene O.

Silicate of sodium bandage. 1884. (In Journal of the American Medical Association, v.3, p.39–40.)

Paper read before the Rock Island County Medical Society at Rock Island, Ill., April 1, 1884. Discusses the method of applying sodium silicate and the advantages of its use.

Breest, F.

Physiological action of silicic acid; its absorption. 1921. (In Chemical abstracts, v.15, p.270.)

Abstract from "Biochemische zeitschrift," v.108, p.309–316. Confirms Schubauer's observations on the effect of sodium silicate.

Champouillon.

Nouvelles expériences sur les propriétés thérapeutiques et antiputrides du silicate du soude. 1873. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.76, p.355–356.)

The same. 1873. (In Le Moniteur scientifique, v.15, p.450–451.)

[Darby.]

Water-glass as a bandage. 1870. (In Pharmaceutical journal and transactions, v.30, ser.3, v.1, p.426.)

Brief abstract from "Medical times and gazette."

Eichhorst, H.

Poisoning with water-glass. 1921. (In Chemical abstracts, v.15, p.1166.)

Abstract from "Schweiz. med. wochschr.," v.50, p.1081, through "Jour. Amer. Med. Assoc.," v.76, p.275.

Eliason, Eldridge L.

Practical bandaging, including adhesive and plaster-of-paris dressings. Ed.2, revised. 126 p. 1921. Lippincott. (Lippincott's nursing manuals.)

"Sodium silicate (liquid glass)," p.121. Deals briefly with its use as a dressing.

Fenner, B.

Complete formulary; containing working formulas for all official and unofficial preparations generally used or required in the practice of pharmacy and the business of the chemist, manufacturing pharmacist, manufacturer of proprietary medicine, physician, perfumer, etc. Ed.11. 1654 p. 1898. Privately printed.

"Liquor sodii silicatis," p.567–568.
Official in United States "Pharmacopœia" of 1890, but not found in later edition.

Hare, Hobart Amory, *and others, ed.*

National standard dispensatory; containing the natural history, chemistry, pharmacy, actions and uses of medicines, in accordance with the ninth decennial revision of the United States pharmacopœia. Ed.3, revised and enlarged. 2081 p. 1916. Lea.

"Liquor sodii silicatis.—Solution of sodium silicate," p.965–966.
See also p.1523.

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Petit, A.

Sur les substances antifermentescibles. 1872. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.75, p.881–883.)

The same, abstract. 1872. (In Bulletin de la Société Chimique de Paris, v.23, n. s. v.18, p.436–437.)

The same, abstract translation. 1872. (In Chemical news, v.26, p.204.)

The same, abstract translation. 1872. (In Chemisches central-blatt, v.43, ser.3, v.3, p.723.)

The same, abstract translation. 1873. (In Journal of the Chemical Society, v.26, n. s. v.11, p.84.)

Includes a study of the antifermentative properties of sodium silicate.

Picot.

Sur les propriétés antifermentescibles du silicate de soude. 1872–73. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.75, p.1124–1125, 1516–1519; v.76, p.99–103.)

The same, abstract. 1873. (In Bulletin de la Société Chimique de Paris, v.24, n. s. v.19, p.84–85.)

Abstract of first two papers only.

The same, abstract translation. 1873. (In Journal of the Chemical Society, v.26, n. s. v.11, p.294.)

Abstract of first paper only. Investigation of the antifermentative prcperties of sodium silicate.

Proposed use of soluble glass. 1867. (In Chemical news, v.15, p.71.)

Very short note on use in surgical bandages.

Rabuteau, A. & **Papillon,** F.

Des effets thérapeutics du silicate de soude. 1872. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.75, p.1514–1516.)

See also p.1652.

The same, condensed. 1873. (In Le Moniteur scientifique, v.15, p.32–33.)

Short article on therapeutic effects of sodium silicate.

Rabuteau, A. & **Papillon,** F.

Recherches sur les propriétés antifermentescibles et l'action physiologique du silicate de soude. 1872. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.75, p.755–757, 1030–1031.)

The same, condensed. 1872. (In Le Moniteur scientifique, v.14, p.912–913.)

The same, abstract. 1872–73. (In Bulletin de la Société Chimique de Paris, v.23, n. s. v.18, p.435–436; v.24, n. s. v.19, p.84.)

The same, abstract translation. 1872. (In Chemical news, v.26, p.180.)

Abstract of first paper only.

The same, abstract translation. 1872. (In Chemisches central-blatt, v.43, ser.3, v.3, p.711, 791.)

The same, abstract translation. 1873. (In Journal of the Chemical Society, v.26, n. s. v.11, p.85, 400.)

Study of antifermentative and physiological actions of sodium silicate.

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Regnauld, J.

Ueber die eigenschaften und die bereitung des zur anwendung in der chirurgie bestimmten kaliwasserglases. 1875. (In Chemisches central-blatt, v.46, ser.3, v.6, p.12–14.)

From "Journal de pharmacie et de chimie," ser.4, v.39, p.273.

Remington, Joseph Price.

Practice of pharmacy; a treatise on the modes of making and dispensing official, unofficial and extemporaneous preparations, with descriptions of their properties, uses and doses; a hand-book for pharmacists and physicians and a text-book for students. Ed.3, revised and enlarged. 1497 p. 1894. Lippincott.

"Liquor sodii silicatis. U. S. Solution of sodium silicate," p.518.

Scheffler, L. *and others.*

Sur l'emploi du silicate de soude en injections intraveineuses; effets physiologiques; effets thérapeutiques. 1920. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.171, p.416–418.)

The same, abstract translation. 1920. (In Chemical abstracts, v.14, pt.3, p.3725.)

The same, abstract translation. 1921. (In Chemisches zentralblatt, v.92, ser.6, v.3, pt.1A, p.45.)

The same, abstract translation. 1921. (In Journal of the American Pharmaceutical Association, v.10, p.71.)

This abstract is from "Chemist and druggist," Nov. 27, 1920, p.77.

Schubauer, F.

Physiological action of silicic acid; its action on the animal organism. 1921. (In Chemical abstracts, v.15, p.269.)

Abstract from "Biochemische zeitschrift," v.108, p.304–308. Concludes that the toxic effect of sodium silicate is due to the splitting off of free sodium hydroxide.

Shuh.

See "Du verre liquide pour les appareils chirurgicaux."

Solution of silicate of potassium. 1878. (In Proceedings of the American Pharmaceutical Association, v.26, p.361–362.)

Abstract from "New rem.," Sept. 1877, p.284.

The same. 1877. (In Pharmaceutical journal and transactions, v.37, ser.3, v.8, p.85.)

Gives the formula adopted by the Paris Pharmaceutical Society.

Du verre liquide pour les appareils chirurgicaux. 1866. (In Le Moniteur scientifique, v.8, p.374.)

Short abstract from "L'Ippocratico" on Shuh's proposal to use water-glass in preparing surgical bandages.

White, R. Prosser.

Occupational affections of the skin; their prevention and treatment, with an account of the trade processes and agents which give rise to them. Ed.2. 360 p. 1920. Hoeber.

Considers dermatitis caused by water-glass, p.78–79.

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Wood, George Bacon, & **Bache,** Franklin.

Dispensatory of the United States of America; thoroughly revised and largely rewritten by J. P. Remington [and others]. Ed.20, revised. 2010 p. 1918. Lippincott.

"Sodium silicate," p.1615.

Paper

Andés, Louis Edgar.

Papier-specialitäten; praktische anleitung zur herstellung von den verschiedensten zwecken dienenden papierfabrikaten. 288 p. 1896. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.223.)

Water-glass in fire-proof paper, p.68–70.

Andés, Louis Edgar.

Treatment of paper for special purposes; translated by Chas. Salter. 239 p. 1907. Scott, Greenwood.

Water-glass in fire-proof paper, p.57–58.

Artus, Willibald.

Neue anwendung des wasserglases. 1857. (In Chemisches centralblatt, v.28, n. s. v.2, pt.2, p.749.)

The same. 1857. (In Polytechnisches journal, v.146, p.155.)

Short note on use of water-glass for treating paper as a substitute for wax paper.

Baerle, & **Sponnagel.**

Neue verwendung des wasserglases zur papier-fabrikation. 1878. (In Neueste erfindungen und erfahrungen, v.5, p.480–481.)

Brief notice of a process for pulping paper-making raw materials by means of a cold solution of sodium sulphide and water-glass, and of a water-glass-rosin size.

Blasweiler, T. E.

Use of water glass in the sizing of paper. 1922. (In Chemical abstracts, v.16, p.492–493.)

The same. 1921. (In Chemisches zentralblatt, v.92, ser.6, v.3, pt.2B, p.1340.)

Abstracts from "Papierfabr.," Festheft 1921, p.43–50; v.19, p.625–630, 809–816, 875–877, 992–997, 1108–1111, 1217–1223.

Original article has been reprinted, and parts have been translated in "Paper," v.28, no.22, p.20; no.24, p.20; v.29, no.6, p.19–20.

Davis, Charles Thomas.

Manufacture of paper; being a description of the various processes for the fabrication, coloring and finishing of every kind of paper; including the different raw materials and the methods for determining their values; the tools, machines and practical details connected with an intelligent and a profitable prosecution of the art, with special reference to the best American practice. 608 p. 1886. Baird.

Gives methods of sizing paper with compositions containing water-glass, p.449–452.

Frohberg, A.

Is mineral sizing of print paper by magnesium sulfate and water glass possible? 1914. (In Chemical abstracts, v.8, pt.1, p.1206.)

The same. 1913. (In Journal of the Society of Chemical Industry, v.32, pt.2, p.1103.)

Both are abstracts from "Wochenblatt für papierfabrikation," v.44, p.4250–4252, giving results of investigation.

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Gawalovski, A.

Herstellung von feuersicherer, nicht brüchiger dachpappe. 1885. (In Neueste erfindungen und erfahrungen, v.12, p.231.)

Use of a mixture of tar and water-glass solution for making fireproof roofing-paper.

Klein, A. & **Krawany**, L.

Sizing with water-glass instead of rosin. 1908. (In Chemical abstracts, v.2, pt.1, p.589.)

Abstract from "Papierztg.," v.32, p.3739. Use of water-glass and alum for sizing printing-papers.

Kolb, A.

Substitutes for paper sizing. 1922. (In Chemical abstracts, v.16, p.493.)

The same. 1921. (In Chemisches zentralblatt, v.92, ser.6, v.3, pt 2B, p.1340.)

Abstracts from "Papierfabr.," v.19, p.1141–1144. Use of the alkali salts of fatty acids in connection with water-glass.

Mierzinski, Stanislaus.

Handbuch der praktischen papier-fabrikation. 3v. 1886. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.138, 141–142.)

Considers treatment of paper-making raw materials by means of sodium sulphide and water-glass, v.1, p.74.

Müller, H. & **Müller**, F.

Sizing with water-glass. 1908. (In Chemical abstracts, v.2, pt.1, p.589.)

Abstract from "Papierztg.," v.32, p.3869–3870. Account of experiments on the sizing of printing-paper.

R., A.

Sizing straw paper with water-glass. 1922. (In Chemical abstracts, v.16, p.1152.)

The same. 1922. (In Paper, v.30, no.9, p.10.)

Abstract from "Papeterie," v.44, p.58–61.

Sizing with water glass. 1908. (In Chemical abstracts, v.2, pt.1, p.589.)

Abstract from "Papierztg.," v.32, p.3829. Prevents "dusting" of printing-paper by adding water-glass and an increased amount of alum.

Vail, James G.

Silicate of soda in papermaking. 1921. (In Chemical and metallurgical engineering, v.25, p.823–824.)

The same. 1921. (In Paper trade journal, v.73, no.17, p.32, 34.)

See also v.74, no.1, p.49.

The same, abstract. 1922. (In Chemical abstracts, v.16, p.492.)

The same, abstract. 1921. (In Industrial digest, v.1, p.337.)

The same, abstract. 1921. (In Journal of the Society of Chemical Industry, v.40, p.884A.)

The same, abstract. 1921. (In Paper, v.29, no.16, p.18.)

The whole paper was published in v.29, no.6, p.19–20.

Shows the advantages of using sodium silicate in sizing paper and suggests the method of procedure for obtaining these results.

Waterproof paper. 1920. (In Chemical abstracts, v.14, pt.1, p.627.)

Very brief abstract from "Papier," v.22, p.358. Gives the composition of the mixture used, sodium silicate being one of the constituents.

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Wrede, Hans.

Use of corn starch in paper making. 1913. (In Chemical abstracts, v.7, pt.2, p.2114.)

Abstract from "Wochbl. für papierfabr.," v.44, p.835–841. Deals with sizing by means of corn starch in connection with other agents, among them sodium silicate.

Structural Materials

General and Miscellaneous

Barlow, J.

On silica and some of its applications to the arts. 1854. (In Chemical gazette, v.12, p.217–220.)

The same. 1854. (In Civil engineer and architect's journal, v.17, p.382–383.)

The same, translated. 1854. (In Polytechnisches journal, v.133, ser.3, v.33, p.291–296.)

Translation contains many foot-notes by the editor.

Paper read before the Royal Institution of Great Britain, April 7, 1854. Deals principally with the use of water-glass for preserving building stone, hardening cements, mortars, etc., and in stereochromy.

Colné, C.

Soluble glass in house-construction. 1898. (In American architect and building news, v.59, p.51–53.)

Deals with the use of water-glass for fire-proofing, protecting building materials from atmospheric agencies, coloring stones, painting, and stereochromy.

Feichtinger, G.

Die chemische technologie der mörtelmaterialien. 478 p. 1885. Vieweg, Brunswick, Germany. (Handbuch der chemischen technologie; hrsg. von P. A. Bolley und anderen.)

Treats briefly the effect of water-glass on lime and cement, p.199–200; its use for hardening of gypsum, p.399–400, 404; making artificial stone, p.423–427; and stereochromy, p.432–441.

Koller, Theodor.

Die bedeutung und praktische anwendung des wasserglases in der bautechnik. 1895. (In Annalen für gewerbe & bauwesen, v.37, p.77–79.)

Koller, Theodor.

Praktische erfahrungen über die herstellung wetterfester und wasserdichter anstriche im bauwesen. 1891. (In Annalen für gewerbe & bauwesen, v.29, p.79–80.)

The same, abstract. 1893. (In Neueste erfindungen und erfahrungen, v.19, p.14.)

Includes preparation of water-glass mortar and coating of walls with water-glass.

Kuhlmann, Frédéric.

De l'intervention de la potasse ou de la soude dans la formation des chaux hydrauliques, des ciments, et en général des espèces minérales naturelles produites par la voie humide. 1847. (In Annales de chimie et de physique, v.192, ser.3, v.21, p.364–375.)

The same, condensed translation. 1847. (In Polytechnisches journal, v.106, p.425–435.)

Remarks by the editor, p.435–438.

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Kuhlmann, Frédéric—*continued.*

The same, abstract translation. 1847. (In Pharmaceutisches centralblatt, v.18, pt.2, p.923–925.)

Use of water-glass in preparing cements, artificial stone, etc.

Kuhlmann, Frédéric.

Mémoire sur les chaux hydrauliques, les ciments et les pierres artificielles, suivi de considérations chimiques sur la formation des calcaires siliceux, et en général des espèces minérales formées par la voie humide. 1841. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.12, p.850–855.)

Abstract.

The same, enlarged translation. 1842. (In Annalen der chemie und pharmacie, v.41, p.220–236.)

The same, condensed translation. 1841. (In Polytechnisches journal, v.81, p.133–139.)

This translation includes a discussion by the editor.

Includes manufacture of artificial stone by means of water-glass, and a theory that silicate minerals are formed by the interaction of soluble silicates and other compounds.

Kuhlmann, Frédéric.

Résumé théorique sur l'intervention des silicates alcalins dans la production artificielle des chaux hydrauliques, des ciments, des calcaires siliceux, suivi de quelques considérations géologiques sur la formation par voie humide en général. 1855. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.41, p.980-983, 1029–1035.)

The same, translated. (In Polytechnisches journal, v.139, p.368–371.)

Translation of first part only.

Wagner, G.

Wasserglasmörtel. 1891. (In Chemisches repertorium, v.15, pt.2, p.284.)

Very brief abstract from "Thonindustrie-zeitung," v.15, p.755. Gives formula for a water-glass mortar.

Wagner, H.

Sur l'emploi du verre soluble dans les constructions. 1872. (In Bulletin de la Société Chimique de Paris, v.23, n. s. v.18, p.418–419.)

The same. 1872. (In Chemisches central-blatt, v.43, ser.3, v.3, p.558–559.)

Both are abstracts from "Deutsche industrie-zeitung," 1872, p.285. Discussion of use of water-glass in mortar and paints.

Artificial Stone

Delesse.

Ueber verschiedene auf der vorjährigen industrie-ausstellung in London vertretene baumaterialien. 1863. (In Polytechnisches journal, v.170, p.208–217.)

From "Civilingenieur," v.9, p.241. Discusses use of water-glass in manufacture of artificial stone and in preservation of wood and stone.

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Füchten, B. H.

Verwendung von wasserglas zur anfertigung von kunststeinmassen. 1899. (In Thonindustrie-zeitung, v.23, pt.1, p.307–308.)

The same, abstract translation. 1899. (In Journal of the Society of Chemical Industry, v.18, p.1127–1128.)

From "Keramische rundschau," 1899, p.74.

Gillmore, Quincy Adams.

Practical treatise on Coignet-béton and other artificial stone. 107 p. 1871. Van Nostrand.

Considers, p.73–83, Ransome's silicious concrete stone and hardening and preserving of stone, brick, etc., employing sodium silicate.

Granger, Albert Alexandre.

Pierres et matériaux artificiels de construction. 312 p. 1908. Doin, Paris. (Encyclopédie scientifique.)

"Agglomérés au silicate de soude," p.265–273.

Hirschberg, A.

Ransome's künstliche steine; marmorkitt. 1871. (In Deutsche bauzeitung, v.5, p.389.)

Short note on artificial stone and cement for marble in which water-glass is used.

Höfer, Johannes.

Die fabrikation künstlicher plastischer massen, sowie der künstlichen steine, kunststeine, stein- und cementgüsse. Ed.2, revised and enlarged. 304 p. 1898. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.151.)

Includes the preparation of plastic materials, artificial stone, etc. from water-glass, p.164–195.

Lehner, Sigmund.

Die kunststeine. 360 p. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.257.)

Considers the use of water-glass in artificial stone, p.85–87.

Pukall, W.

Wasserglassandstein. 1913. (In Sprechsaal, v.46, p.1–2.)

The same, abstract. 1913. (In Chemisch-technisches repertorium, v.37, p.371–372.)

The same, abstract. 1913. (In Chemisches zentralblatt, v.84, ser.5, v.17, pt.1A, p.857–858.)

The same, abstract. 1913. (In Neueste erfindungen und erfahrungen, v.40, p.450.)

The same, abstract. 1913. (In Silikat-zeitschrift, v.1, p.21.)

The same, abstract translation. 1914. (In Chemical abstracts, v.8, pt.1, p.559.)

The same, abstract translation. 1913. (In Journal of the Society of Chemical Industry, v.32, pt.1, p.86.)

Preparation of an artificial sandstone, using water-glass as one of the constituents.

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Ransome, Frederick.

On soluble silicates and some of their applications. 1859. (In Journal of the Society of Arts, v.7, p.758–760.)

The same, abstract. 1859. (In Report of the British Association for the Advancement of Science, v.29, Notices and abstracts of miscellaneous communications to the sections, p.78–79.)

Deals mainly with use in making artificial stone.

Ransome, Frederick.

On some recent improvements in the manufacture of artificial stone, and the application of such stone to constructive and other purposes. 1872. (In Report of the British Association for the Advancement of Science, v.42, Notices and abstracts of miscellaneous communications to the sections, p.248–249.)

Includes use of water-glass for making artificial stone by the author's process.

Ransome, Frederick.

On water-glass and its application to the arts and manufactures. 1859. (In Journal of the Society of Arts, v.7, p.593–595.)

Calls attention to the author's work on various applications of water-glass, with particular emphasis on the manufacture of artificial stone and the preservation of buildings. Includes in the appendix signed reports by T. H. Henry, D. T. Ansted, and Robert Hunt.

Concrete

Andrews, H. B.

Design of reinforced-concrete fuel-oil reservoirs. 1919. (In Proceedings of the American Concrete Institute, v.15, p.173–178.)

Discussion included in the group discussion on oil tanks, p.204–210. Gives, p.177–178, method of applying sodium silicate which has been used satisfactorily for oil-proofing.

Dement, W. E.

See "Using sodium silicate in concrete."

Floor hardener tests by Bureau of Standards. 1920. (In Concrete, v.16, p.279–280.)

The same. 1921. (In Journal of the American Institute of Architects, v.9, p.62–65.)

These articles are not identical but apparently cover the same tests.

Tests show that sodium silicate, which was among the agents studied, gave good results. Includes method of application.

Gardner, Henry A.

See "Silicate of soda paint."

Kellog, W.H. *jr.*

See "Silicate of soda paint."

Moyer, Albert.

Cement concrete vats and tanks. 1910. (In Canadian engineer, v.19, p.707.)

The same. 1910. (In Concrete and constructional engineering, v.5, p.933.)

The same. 1910. (In Engineering record, v.62, p.624.)

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Moyer, Albert—*continued.*

The same. 1910. (In Municipal engineering, v.39, p.477.)

The same, condensed. 1910. (In Engineering and mining journal, v.90, p.1196.)

Letter giving detailed directions for the treatment of inside surfaces of concrete vats and tanks with water-glass.

Moyer, Albert.

Effect of sodium silicate mixed with or applied to concrete. 1910. (In Proceedings of the American Society for Testing Materials, v.10, p.351–355.)

Discussion, p.356–360.

The same, rearranged. 1910. (In Concrête engineering, v.5, p.162–163.)

The same, rearranged. 1910. (In Engineering-contracting, v.34, p.3–4.)

The same rearranged. 1910. (In Engineering record, v.62, p.104–105.)

The same, condensed and rearranged. 1910. (In Concrete, v.10, Aug. 1910, p.49–51.)

See also Sept., p.53.

The same, condensed and rearranged. 1910. (In Scientific American supplement, v.70, p.63.)

The same, abstract of discussion. 1911. (In Chemical abstracts, v.5, pt.2, p.1830.)

Author favors use of sodium silicate. Discussion brings out adverse criticism.

Moyer, Albert.

Sodium silicate solution for concrete floors. 1914. (In Concrete-cement age, v.4, p.135.)

Answer to inquiry. Gives detailed directions for applying water-glass on concrete floors. Same directions as in following reference.

Moyer, Albert.

To prevent dusting or easy abrasion of improperly laid concrete floors. 1911. (In Municipal engineering, v.40, p.354–355.)

The same, condensed. 1911. (In Engineering news, v.65, p.180–181.)

The same, abstract. 1910. (In Concrete and constructional engineering, v.5, p.934–935.)

Communication giving detailed directions for applying water-glass on concrete floors.

Moyer, Albert.

See also "Using sodium silicate in concrete."

Neal, C. S.

See "Silicate of soda paint."

Plumb, R. A.

See "Silicate of soda paint."

Silicate of soda paint. 1913. (In Concrete-cement age, v.3, p.120–121, 176, 224–225, 273–274.)

Answers by Henry A. Gardner, W. H. Kellog, jr., C. S. Neal, and R. A. Plumb to questions on sodium silicate paints for concrete work.

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Smith, George A.

Further tests of concrete tanks for oil storage. 1921. (In Proceedings of the American Concrete Institute, v.17, p.21–37.)

Discussion, p.38–39.

Considers, p.33–34, oil-proofing by coating with sodium silicate, the tests indicating that it is not effective in reducing the permeability of concrete to the lighter oils.

Soaking concrete in magnesium fluosilicate and sodium silicate solutions. 1920. (In Concrete, v.17, p.28–29.)

Properties of concrete as affected by storage in these solutions. Results of tests by the United States Bureau of Standards.

Using sodium silicate in concrete. 1917. (In Concrete, v.11, p.52–53.)

Answers by W. E. Dement and Albert Moyer to questions on the use of water-glass to accelerate hardening and increase hardness.

Fireproofing. Preservation of Wood

Abel, F. A.

See "On the protection of wood from fire."

Andés, Louis Edgar.

Feuersicher-, geruchlos- und wasserdichtmachen aller materialen, die zu technischen und sonstigen zwecken verwendet werden; mit einem anhang, Die fabrikation des linoleums. 283 p. 1896. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.222.)

Use of water-glass, p.21, 69–71.

Bericht der abtheilung für chemie und physik über die anwendbarkeit des wasserglases, als eines mittels, das entbrennen feuerfangender gegenstände zu verhüten. 1841. (In Verhandlungen des Vereins zur Beförderung des Gewerbfleisses in Preussen, v.20, p.49–53.)

Eschenbacher, August.

Die feuerwerkerei; oder, Die fabrikation der feuerwerkskörper. Ed.3, revised and enlarged. 271 p. 1897. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.11.)

Use of water-glass for fire-proofing, p.71–72.

Feuersichere anstrichmasse aus wasserglas. 1913. (In Neueste erfindungen und erfahrungen, v.40, p.566–567.)

Several receipts for fire-proofing coatings containing water-glass.

Forstner, Alphons.

Die künstliche kühlung; isolation gegen feuchtigkeit und für elektrizität, anleitung zur praktischen durchführung derselben für produzenten und händler mit lebensmitteln, bautechniker und elektrotechniker. 256 p. 1903. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.267.)

Use of water-glass for the preservation of wood, p.119–121.

Hexamer, C. J.

Process of fire-proofing wood to be used for the woodwork of war vessels. 1899. (In Journal of the Franklin Institute, v.147, p.65–70.)

Details of process in which water-glass is utilized.

Kaiser, C. G.

Hrn. Hofrathes Fuchs wasserglas taugt allerdings auch gegen holzmoder. 1826. (In Polytechnisches journal, v.21, p.91–92.)

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Koller, Theodor.

Die imprägnirungs-technik; handbuch der darstellung aller fäusnisswiderstehenden, wasserdichten und feuersicheren stoffe. 442 p. 1896. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.219.)

Includes discussion of water-glass and its use in fire-proofing and preserving wood, p.47, 128–133, 137, 143, 150–151.

On the protection of wood from fire. 1857. (In Mechanics' magazine, v.67, p.531–532, 580–582, 609–610.)

Contains a paper by F. A. Abel and an extract from a report by Sandham and F. A. Abel. Use of sodium silicate is considered, p.581–582, 609–610. The abstracts and translation are concerned only with the part on sodium silicate.

The same, abstract. 1859. (In Journal of the Franklin Institute, v.68, ser.3, v.38, p.284–285.)

The same, condensed translation. 1858. (In Polytechnisches journal, v.149, p.194–197.)

The same, abstract translation. 1859. (In Bulletin de la Société d'Encouragement pour l'Industrie Nationale, v.58, ser.2, v.6, p.374–375.)

See also v.59, ser.2, v.7, p.111.

The same, abstract translation. 1859. (In Répertoire de chimie appliquée, v.1, p.63–64.)

Pütsch, Albert.

Wasserglas zum schutze von hölzernen dachconstructionen. 1865. (In Zeitschrift des Vereines Deutscher Ingenieure, v.9, col.543.)

The same. 1865. (In Polytechnisches journal, v.177, p.492.)

The same, abstract. 1865. (In Chemisches central-blatt, v.36, n. s. v.10, p.944.)

Gives formula for making water-glass for fire-proofing wooden roofs.

Sandham, & Abel, F. A.

See "On the protection of wood from fire."

Über das wasserglas. 1840. (In Allgemeine bauzeitung, v.5, p.36–38.)

Utilization of water-glass for fire-proofing and various coating purposes.

Paints and Preservative Coatings

Andés, Louis Edgar.

Praktisches handbuch für anstreicher und lackirer. Ed.2, revised. 308 p. 1892. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.115.)

"Wasserglasfarben," p.133–135.
"Anstrichverfahren mit wasserglas," p.202–215.

Anwendung des wasserglases zu fussbodenanstrichen. 1874. (In Neueste erfindungen und erfahrungen, v.1, p.25–26.)

From the "Ztschr. d. ö. Apoth.-Ver." Gives directions for and advantages of applying water-glass paints to flooring.

See also p.201.

Anwendung von wasserglas bei fussbodenanstrichen. 1902. (In Neueste erfindungen und erfahrungen, v.29, p.424.)

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Baerle, van, & **Sponnagel,** H.

Ueber die anwendung des kali- und natron-wasserglases zum anstrich auf holz, mauerwerk und metallen. 1875. (In Deutsche bauzeitung, v.9, p.511.)

The same. 1876. (In Chemisches central-blatt, v.47, ser.3, v.7, p.128, 141–142.)

The same, abstract. 1876. (In Dingler's polytechnisches journal, v.219, ser.5, v.19, p.373–374.)

From "Ind.-Bl.," v.13, p.40. Authors are (1875) manufacturers of water-glass.

Bersch, Josef.

Die malerfarben und malmittel. 342 p. 1905. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.282.)

"Die stereochromie oder wasserglasmalerei," p.28–37; "Das wasserglas," p.180–184.

Bühler.

Zur verwendung des wasserglases bei bauten. 1867. (In Zeitschrift des Österreichischen Ingenieur- und Architekten-Vereins, v.19, p.104.)

The same. 1868. (In Polytechnisches journal, v.187, ser.4, v.37, p.84–85.)

Treatment of limestone window-sills to protect them from weathering.

Creuzburg, H.

Kritische notizen, das wasserglas betreffend. 1857. (In Polytechnisches journal, v.144, p.290–292.)

Comments on some uses of water-glass, especially in paints.

Creuzburg, H.

Verbesserte wasserglasanstriche. 1857. (In Polytechnisches journal, v.144, p.292–295.)

The same. 1857. (In Chemisches central-blatt, v.28, n. s. v.2, pt.1, p.428–430.)

There are slight changes in the reprint.

Dalemagne, Léon.

Note sur la silicatisation appliquée à la conservation des monuments, d'après le système de Fuchs. 1860. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.50, p.857.)

The same, abstract translation. 1860. (In Polytechnisches journal, v.157, p.154.)

Improved method of preserving monuments by means of mixture of water-glass and potassium phosphate.

Dalemagne, Léon.

Verfahren zum conserviren der monumente nach der von Fuchs entdeckten methode durch verkieselung mittelst wasserglas. 1861. (In Polytechnisches journal, v.160, p.51–55.)

The same. 1861. (In Allgemeine bauzeitung, v.26, p.123–124.)

There are a number of changes in the reprint.

Encyclopædia Britannica; a dictionary of arts, sciences, literature and general information. Ed.11. 29v. 1910–11.

"Stereochromy or water-glass painting," v.20, p.488–489.

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Feichtinger, G.

Ueber die verwendung des wasserglases in der bautechnik. 1873. (In Polytechnisches journal, v.210, ser.5, v.10, p.440–444.)

From "Bayerischen industrie- und gewerbeblatt," 1873, p.222.

The same, condensed. 1874. (In Chemisches central-blatt, v.45, ser.3, v.5, p.74–75.)

The same, abstract. 1874. (In Neueste erfindungen und erfahrungen, v.1, p.60–61.)

The same, abstract translation. 1874. (In Bulletin de la Société Chimique de Paris, v.26, n. s. v.21, p.280–282.)

Deals with use of water-glass in painting and stereochromy.

Frühling, H.

Ueber die verwendbarkeit des wasserglases in der bautechnik. 1875. (In Deutsche bauzeitung, v.9, p.73–75.)

The same. 1875. (In Dingler's polytechnisches journal, v.217, ser.5, v.17, p.421–424.)

The same. 1875. (In Neueste erfindungen und erfahrungen, v.2, p.193–197.)

Discusses the value of water-glass in construction work, particularly as a painting and coating material, due to its resistance to temperature and moisture.

Herbert.

See "Peinture murale."

Keim, A.

Die mineral-malerei; neues verfahren zur herstellung witterungsbeständiger wandgemälde. 92 p. 1881. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.78.)

Contains considerable material on stereochromy and the use of water-glass in painting.

Kuhlmann, F.

Practical instructions on the use of soluble alkaline silicates (water-glass) in painting, and for hardening stones. 1859. (In Journal of the Society of Arts, v.7, p.587–589.)

Translated from a pamphlet published by Kuhlmann.

Löhr, Moritz, *ritter* von.

Die anwendung des wasserglases bei bauten. 1868. (In Polytechnisches journal, v.187, ser.4, v.37, p.181–182.)

From "Verhandlungen und mittheilungen des Nieder-Österreichischen Gewerbevereins," 1867, no.28.

Deals with the use of water-glass as a preservative coating.

Mierzinski, Stanislaus.

Handbuch der farben-fabrikation; praxis und theorie. 2v. 1898. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.229–230.)

"Wasserglasfarben," v.2, p.1012–1013.

Nicksch, K.

Paints for iron which is exposed to high temperatures. 1920. (In Chemical abstracts, v.14, pt.3, p.3802.)

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Nicksch, K.—*continued.*

The same. 1921. (In American Gas Association bulletin of abstracts, v.15, p.517–518.)

The same. 1921. (In Journal of the American Ceramic Society, v.4, p.159–160.)

Includes coating with sodium silicate.

Öfen mit wasserglasanstrich. 1913. (In Neueste erfindungen und erfahrungen, v.40, p.616.)

From "Der Metallarbeiter."

[Olfers, von.]

Schreiben des wirklichen Geheimen Raths Herrn von Olfers über die anwendbarkeit des wasserglases zum schutze von marmor und anderem gestein gegen den einfluss der witterung. 1864. (In Verhandlungen des Vereins zur Beförderung des Gewerbfleisses in Preussen, v.43, p.268–269.)

The same. 1865. (In Polytechnisches journal, v.176, p.229–231.)

Painters magazine.

Nineteen ninety five paint questions answered. 798 p. 1919.

Use of water-glass in painting, p.285 (no.732), p.499–500 (no.1364), p.557 (no.1513), p.656 (no.1778), and p.668–669 (no.1817).

Peinture murale. 1864. (In Le Moniteur scientifique, v.6, p.800.)

Short note on the use of water-glass in mural painting, by Herbert.

Pettenkofer, Max.

Die Fuch'sche wandmalerei (stereochromie). 1849. (In Polytechnisches journal, v.113, p.217–225.)

Puscher, C.

Ueber wasserglas-farben. 1870. (In Polytechnisches journal, v.196, ser.4, v.46, p.373.)

The same, abstract translation. 1870. (In Bulletin mensuel de la Société Chimique de Paris, v.19, n. s. v.14, p.89.)

From "Gewerbezeitung," 1870, no.9.

Puscher, C.

Water-glass as a solvent for coralline. 1870. (In Chemical news, v.21, p.239.)

The same. 1870. (In Polytechnisches journal, v.196, ser.4, v.46, p.175–176.)

See "Chemisches central-blatt," v.42, ser.3, v.2, p.448 for abstract of discussion.

The above are abstracts from "Bayerisches industrie- und gewerbeblatt," 1870, p.98. English abstract is only a brief note.

Use of solution as a paint for different materials.

Resch, E.

Ueber die anwendung des wasserglases zum anstrich von essen und holzbauten. 1863. (In Polytechnisches journal, v.167, ser.4, v.17, p.279–281.)

Wagner, H.

Ueber wasserglas-anstriche. 1876. (In Chemisches central-blatt, v.47, ser.3, v.7, p.14–15.)

Abstract from "Hess. gew.-bl." through "Pharm. c.-h.," v.16, p.389.

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Wasserglas als anstrich. 1891. (In Chemisches repertorium, v.15, pt.2, p.300.)

Very brief abstract from "Thonindustrie-zeitung," v.15, p.703. Deals with use of water-glass for coating walls.

Wasserglas zur konservirung von sandsteinen. 1868. (In Deutsche bauzeitung, v.2, p.509–510.)

The same, abstract. 1869. (In Chemisches central-blatt, v.40, n. s. v.14, pt.2, p.816.)

Waterglass as a preservative of materials. 1858. (In Civil engineer and architect's journal, v.21, p.297–298.)

The same. 1858. (In Journal of the Franklin Institute, v.66, ser.3, v.36, p.405–406.)

Textiles

Application of sodium silicate to the dyeing of half-wool, all-wool, and silken fabrics. 1882. (In Journal of the Society of Chemical Industry, v.1, p.279.)

Abstract from "Central blatt für die textil-industrie."

Bleaching and dyeing silk knitted goods. 1921. (In Textile world, v.60, p.2721.)

Answer to question, giving composition of bath, of which sodium silicate is one of the constituents.

Bleaching cotton piece goods with peroxide. 1921. (In Textile world, v.60, p.2897.)

Answer to question, giving method in which sodium silicate is added as a bleach assistant.

Bolley.

Silicate of soda as a means of fixing aluminous and iron mordants. 1855. (In Chemical gazette, v.13, p.58–59.)

The same. 1855. (In Journal of the Franklin Institute, v.59, ser.3, v.29, p.411–412.)

From "Schweizerisches gewerbeblatt," May 1854.

Calvert, F. Crace-.

On the action of silicate and carbonate of soda on cotton fibre. 1865. (In Journal of the Chemical Society, v.18, n. s. v.3, p.70–77.)

The same. 1865. (In Journal of the Franklin Institute, v.80, ser.3, v.50, p.406–412.)

The same, abstract. 1865. (In Chemical news, v.11, p.113.)

Degumming silk hosiery. 1921. (In Textile world, v.59, p.2571.)

Answer to question. Includes a process in which sodium silicate is used.

Favre, Camille.

Einwirkung des wasserglases und der soda auf chrombeize. 1906. (In Zeitschrift für angewandte chemie, v.19, pt.2, p.1476.)

Very brief abstract from "Veröff. d. ind. Ges. Mülh. i. E.," v.75, p.150–152.

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Geisenheimer, G.

Sur une application du silicate de soude. 1894. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.118, p.192–194.)

The same, abstract translation. 1894. (In Chemical news, v.69, p.69.)
See also p.95–96.

The same, abstract translation. 1894. (In Chemisches central-blatt, v.65, ser.4, v.6, pt.1, p.456.)

The same, abstract translation. 1894. (In Chemisches repertorium, v.18, pt.1, p.68.)

The same, abstract translation. 1894. (In Journal of the Chemical Society, v.66, pt.2, p.189.)

The same, abstract translation. 1894. (In Journal of the Society of Chemical Industry, v.13, p.727.)

Brief article on the use of water-glass in bleaching of linen.
See also correspondence in "Chemiker-zeitung," 1894, v.18, pt.1, p.394.

Göbels, Albert.

Praktische, eigene erfahrungen über die verwendungen des wasserglases in der färberei, bleicherei und appretur. 1890. (In Neueste erfindungen und erfahrungen, v.17, p.18–20.)

From "Centralblatt für die textil-industrie."

Grothe, H.

Ueber die verwendung des wasserglases in der textilindustrie. 1876. (In Chemisches central-blatt, v.47, ser.3, v.7, p.92–93.)

The same, abstract translation. 1877. (In Journal of the Chemical Society, v.31, p.757–759.)

From "Must.-ztg.," v.24, p.378. Deals with the use of water-glass in the textile industry and in paper manufacture, for domestic washing purposes, bleaching, finishing linen or cotton goods, and impregnating.

Grün, A. & **Jungmann,** J.

Über die einwirkung der waschmittel auf die gewebe. 1918. (In Chemisches zentralblatt, v.89, ser.5, v.22, pt.1A, p.313–316.)

The same. 1918. (In Chemical abstracts, v.12, pt.3, p.2693.)

The same. 1918. (In Journal of the Society of Chemical Industry, v.37, pt.2, p.411A.)

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Abstracts of an article in "Seifenfabrikant," v.37, p.507–510, 529–531, 553–555, 579–581, 603–606.
Textiles as affected by various compounds including sodium silicate.

Grüne, W.

Ueber die anwendbarkeit des kieselsauren natrons in der färberei und druckerei. 1855. (In Chemisch-pharmaceutisches central-blatt, v.26, p.71–74.)

The same. 1856. (In Polytechnisches journal, v.140, p.287–290.)

There are some slight changes in these reprints from "Deutsche musterzeitung," 1854, no.6. Concerned with the application of water-glass in the dyeing and printing of cotton.

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Heermann, Paul.

Dyers' materials; an introduction to the examination, valuation and application of the most important substances used in dyeing, printing, bleaching and finishing; translated by Arthur C. Wright. Ed.2, revised and enlarged by H. B. Stocks. 152 p. 1919. Scott, Greenwood.

Outlines a method for analyzing water-glass and lists its applications in the textile industry, p.70–71.

Hübner, Julius, & **Pope,** W. J.

The lustre, the tinctorial properties and the structural alterations which result from treating cotton with mercerising and other liquids. 1904. (In Journal of the Society of Chemical Industry, v.23, pt.1, p.404–411.)

Discussion, p.411.

"Action of a mixture of ten parts of soda lye of 28°B and one part of water-glass solution of 41°B," p.409.

Joclét, Victor.

Die kunst- und feinwäscherei in ihrem ganzen umfange. Ed.3, revised. 200 p. 1895. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.63.)

Discusses the effect of water-glass soaps on fabrics, p.65–67.

Joclét, Victor.

Die woll- und seiden-druckerei in ihrem ganzen umfange. 575 p. 1879. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.46.)

Discusses the use of water-glass in printing, p.64–65.

Kind, W.

Die wirkung der waschmittel auf baumwolle und leinen. 36 p. [1902.] Ziemsen, Wittenberg.

Discusses the action of water-glass as a detergent, p.21–22.

Knecht, Edmund, & **Fothergill,** J. B.

Principles and practice of textile printing. 615 p. 1912. C. Griffin.

Use of sodium silicate as a "dunging" agent, p.149, 339–340.

Knecht, Edmund, *and others.*

Manual of dyeing; for the use of practical dyers, manufacturers, students, and all interested in the art of dyeing. 3v. 1893. C. Griffin.

"Sodium tetrasilicate," v.1, p.196. Gives briefly uses in the textile industry.

Meyer, M. R.

Use of soluble glass in bleaching cotton. 1878. (In Chemical news, v.38, p.23.)

The same. 1878. (In Le Moniteur scientifique, v.20, p.745.)

Both are abstracts from "Muster-zeitung," 1878, p.105.

Pennington, W. H.

Note on a fault due to the dissociation of sodium silicate. 1909. (In Journal of the Society of Dyers and Colourists, v.25, p.45–46.)

Discussion, p.46.

Deals with the formation of dark patches on yarn dyed with methylene blue 2B, which had previously been boiled under high pressure with a caustic solution containing sodium silicate.

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Polleyn, Friedrich.

Die appreturmittel und ihre verwendung. Ed.2, revised. 464 p. 1897. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.134.)

"Wasserglas," p.169–172.
"Wasserglasschlichte," p.321–322.

Polleyn, Friedrich.

Dressings and finishings for textile fabrics and their application; translated from the 3d German edition by Charles Salter. 263 p. 1911. Scott, Greenwood.

Describes briefly methods of preparation and properties of alkali silicates, p.83–84, and gives the preparation of "water-glass size," p.177.

Romagnoli, A.

Über die einwirkung wasserglashaltiger waschmittel auf das gewebe. 1906. (In Chemisches central-blatt, v.77, ser.5, v.10, pt.1A, p.714.)

Abstract from "Industria saponiera" through "Seifensiederzeitung," v.33, p.67.

Silk weighting. 1921. (In Posselt's textile journal, v.29, p.132–iii,v.)

Includes use of sodium silicate in conjunction with tin salts.

Soxhlet, V. H.

Die praxis der anilin-färberei und -druckerei auf baumwoll-waaren. 382 p. 1890. Hartleben, Vienna. (Hartleben's chemisch-technische bibliothek, v.184.)

"Wasserglas," p.28.

Specks in bleached cotton and wool knit fabrics. 1921. (In Textile world, v.60, p.3729.)

Answer to question regarding removal of specks, giving composition of baths, one of the constituents being sodium silicate.

Analysis

Böckmann, Friedrich, *ed.*

Chemisch-technische untersuchungsmethoden der gross-industrie, der versuchsstationen und handelslaboratorien. 2v. 1893. Springer, Berlin.

"Wasserglas," v.1, p.739–741, includes some properties and applications of water-glass, in addition to qualitative and quantitative analysis.

Coffignier, C.

Colores con base de silicato. 1919. (In Ingeniería internacional, v.2, p.374.)

From "Revue de chimie industrielle," v.28, p.299–301. There is a brief abstract in "Chemical abstracts," v.14, p.3801 and in "Journal of the American Ceramic Society," v.4, p.159.

Deals with the analysis of paints having a base of sodium silicate.

Dammer, Otto, *comp.*

Illustriertes lexikon der verfälschungen und verunreinigungen der nahrungs- und genussmittel, kolonialwaren und manufakte, der droguen, chemikalien und farbwaren, gewerblichen u. landwirtschaftlichen produkte, dokumente u. wertzeichen. 1028 p. 1887. Weber, Leipsic.

"Wasserglas (alkalisilikat, kieselsaures alkali, kalium et natrium silicicum)," p.944–945. Includes qualitative and quantitative analysis.

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Griffin, Roger Castle, *ed.*

Technical methods of analysis as employed in the laboratories of Arthur D. Little, Inc., Cambridge, Mass. 666 p. 1921. McGraw. (International chemical series.)

"Sodium silicate (water glass)," p.29–30.

Gives also the determination of sodium silicate in soap, p.283, and in sulphate cook liquor for making paper pulp, p.297, 298.

Heermann, P.

Zur analyze und beurteilung des natronwasserglases. 1904. (In Chemiker-zeitung, v.28, pt.2, p.878–880, 883–884.)

See also p.1004.

The same, abstract. 1904. (In Chemisches central-blatt, v.75, ser.5, v.8, pt.2, p.1255.)

The same, abstract. 1905. (In Zeitschrift für angewandte chemie, v.18, pt.1, p.902.)

The same, abstract translation. 1904. (In Journal of the Chemical Society, v.86, pt.2, p.779–780.)

The same, abstract translation. 1904. (In Journal of the Society of Chemical Industry, v.23, pt.2, p.1000.)

Deals principally with the determination of free alkali in water-glass.

Jordis, Eduard.

Zur kenntnis des natronwasserglases. 1905. (In Chemiker-zeitung, v.29, pt.1, p.33–34.)

The same, abstract. 1905. (In Chemisches central-blatt, v.76, ser.5, v.9, pt.1, p.499.)

The same, abstract. 1905. (In Zeitschrift für angewandte chemie, v.18, pt.2, p.1150.)

Deals with analysis of sodium silicate.

Lunge, George, *ed.*

Technical methods of chemical analysis; English translation from the latest German edition, adapted to English conditions of manufacture; edited by C. A. Keane. v.1–3 in 6. 1908–14. Gurney & J.

"Water-glass," v.2, pt.2, p.929–932.

Scott, Wilfred Welday, *and others, ed.*

Standard methods of chemical analysis; a manual of analytical methods and general reference for the analytical chemist and for the advanced student. Ed 2, revised. 898 p. 1917. Van Nostrand.

"Analysis of silicate of soda," p.373–374.

Sodium silicate; test of the Ph. G. IV. for free alkali. 1904. (In Proceedings of the American Pharmaceutical Association, v.52, p.789.)

Abstract from "Pharm. ztg.," v.49, no.3, p.26.

Stericker, William.

Composition of water-glass solutions. 1920. (In Journal of industrial and engineering chemistry, v.12, p.1026–1027.)

Letter to the editor, suggesting that the composition of sodium silicate solutions be recorded when results of investigations involving such solutions are published. Outlines a method of analysis.

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Travers.

Sur un nouveau procédé de dosage de la silice. 1921. (In Comptes rendus hebdomadaires des séances de l'Académie des Sciences, v.173, p.714–717.)

The same, abstract translation. 1922. (In Chemical abstracts, v.16, p.540.)

Treats a slighty acid solution of an alkali silicate with potassium fluoride in the presence of a high concentration of potassium ions and titrates the resultant precipitate with alkali hydroxide.

Treadwell, Frederick Pearson.

Analytical chemistry; based on the German text; translated and revised by William T. Hall. Ed.5. 2v. 1919–21. Wiley.

v.1, "Qualitative analysis," has section "Water-soluble silicates," p.442–443.

Villavecchia, Vittorio, *and others.*

Treatise on applied analytical chemistry; methods and standards for the chemical analysis of the principal industrial and food products; translated by T. H. Pope. 2v. 1918. Blakiston.

"Sodium silicate (water glass)," v.1, p.103–104.

See also "Analysis," under "Detergents."

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